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# THE ILLUSTRATED POULTRY RECORD

NUMBER 2.

MARCH, 1915.

VOLUME VII.

Edited by E. T. BROWN.



QUARTERLY

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LONDON :

Published at TUDOR HOUSE, TUDOR STREET, LONDON, E.C.



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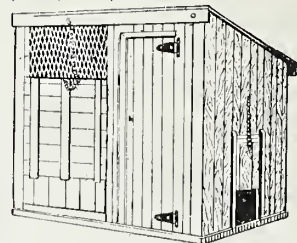
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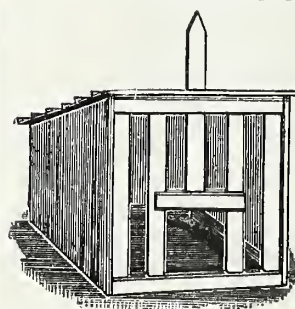
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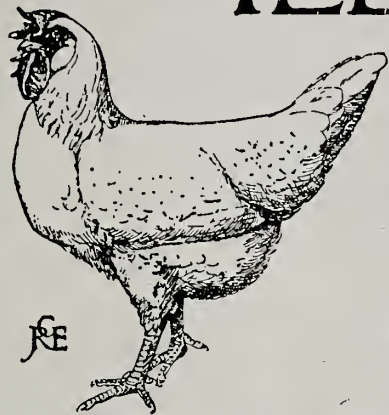


A TYPICAL PAIR OF BLACK ORPINGTONS.

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# THE ILLUSTRATED POULTRY RECORD



Vol. VII.—No. 2.

March 15, 1915.

Quarterly, Price, Sixpence.

## AN EDITORIAL DIARY.

### EDITORIAL NOTICES.

TUDOR HOUSE, TUDOR STREET, WHITEFRIARS,  
LONDON, E.C.

*The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs or sketches, and publication in the ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.*

*The Editor would like to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.*

The ILLUSTRATED POULTRY RECORD is published on the 15th of March, June, September, and December. Should readers experience any difficulty in securing their copies promptly, they are requested to communicate immediately with the Editor.

The latest date for receiving advertisements is the 8th of the month.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser, he is requested to communicate at once with the Editor.

### “Watchman, What of the Night?”

The present position is so different from any period with which those now living are acquainted that we have practically no experience which may be taken as a guide to poultry-keepers. When the last great war between France and Germany broke out in 1870, with a suddenness almost equal to last year, grain and feeding stuffs advanced in values by leaps and bounds in the United Kingdom, although we were not involved, until flour was more than 60s. per sack, due to a species of commercial panic. Then there came a rebound, and rates rapidly fell to little more than these had been prior to the war. Last year the reverse was the case. Thanks to the action of the British Government in general and the Board of Agriculture in particular, the rise was comparatively small. Since August, when an advance might have been reasonably expected, there was at first a slight rise, then a more rapid one, so that at the time of writing grain, flour, and feeding stuffs have increased in value from 50 to 80 per cent. Yet there is no diminution of supplies. Many reasons are adduced, such as increased freights, greater risks, holding of stocks, and so on, with which this is not the place to deal. The fact, so far as poultry-keepers are concerned, is evident—namely, to feed fowls on the same lines as heretofore means an advance in food cost of at least 1s. 6d. to 2s. per hen.

### Fears and Facts.

Under these circumstances the position is difficult in the extreme. Fortunately, so far as eggs are concerned, the rise has been equally marked, as shown by the following table of official prices for first-grade eggs for the week ending



February 18, 1914, and February 25, 1915, respectively, per great hundred :

Class.	1914. s. d.		1915. s. d.		Percentage Increase.
English .....	14	2	17	8	24.7
Irish .....	13	0	15	0	14.74
Danish .....	14	0	16	0	14.28

From the above figures it will be seen that the egg-producer, where he has had any to sell, has not suffered greatly. Such, however, is not the case with poultry, more especially fowls and ducks. At Christmas geese and turkeys were scarce and commanded good rates, though failing to leave the same margin as in previous years owing to increased cost in feeding. The better grades of fowls have been since August in lessened demand, for obvious reasons, whilst ordinary fowls are in many markets not much different. Some poultry-keepers sell by contract, and these have suffered considerably. In one instance we were informed that the enhanced cost of feeding had completely annihilated all profits, as a consequence of which the stock of layers has been reduced from nearly 4,000 hens to about 500. To conduct operations for six months without a penny profit is serious in the extreme. Farmers are not hit nearly so much. It is the special poultryman who is suffering. We fear that many have been led to kill off large numbers of fowls fearing a continuance of the present state of affairs.

### The Breeder's Part.

Nor is the position of those whose main business is sale of stock birds, &c., less difficult, more especially in anticipation of the future. The slump which marked the earlier weeks of the war, when it almost looked as if these would be left with all their birds on hand, happily did not continue, more especially for utility poultry, and from evidence received on all hands these came out remarkably well at the finish, even though the period of demand was somewhat delayed. This was in considerable measure due to the influx of new poultry-keepers as a result of definite encouragement given by public authorities and the Press, as well as a realisation of what the decline in foreign supplies must mean both now and in the days to come. That is satisfactory so far. No greater blow could be struck at the poultry industry than the displacement of the large mass of breeders, large and small, who supply stock or fresh blood in one form or another to the ordinary poultry-keepers, farmers, and others. Each occupy an integral and important place and cannot be dispensed with. The question, however, is being asked on all sides—"What about the coming season?" Those who have catered specially for an export trade may be well advised to ease off somewhat. One such recently informed us that he only intends hatching half as many chickens this year. He may be right and he may not. Our judgment is that such as cater for home

demand will be well advised to go ahead at full pressure. Both of these classes may—we put it that way—find later in the year, if, happily, the war ends before the autumn, a demand from the Continent such as has never been known before. Information to hand is to the effect that Belgium and North-Eastern France are almost denuded of poultry of all grades, and we may assume that such is also the case in Germany and Austria-Hungary, owing to the scarcity and high prices of feed and the shortage of meal.

### Other Considerations.

It is evident that for some time to come eggs and poultry will be scarce and dear, and our view is that in the coming time we shall have to depend to a greater extent upon our own resources. Therefore, unless prices are to remain prohibitive, we must have more poultry and better poultry in the United Kingdom, or the great bulk of our people will have to go without. Under these circumstances a quotation may be made from the *Irish Homestead*, showing that there is a higher ground to take, and which applies to poultry-keepers as well as farmers. The writer says :

It is your obvious human duty, in a great human crisis, to play your part in it as men, doing your work, the honourable toil demanded from you, as soldiers do their less happy but no more necessary duty in the trenches, or on the perilous sea, where sudden death lurks below the shining waters. You have not, any more than those who bear the Red Cross, to ask yourselves the rights or the wrongs of the war. It is your duty, as it is theirs, to relieve human suffering or want, no matter by what race it is felt. Your energy or your lethargy in production will not help or hinder one side in this terrible conflict. It will help or weaken both alike, for increased production or lessened production in the harvests of the world affect all countries finally, prices tending to find their level as water does.

We commend these considerations to poultry-keepers generally. Gifts are valuable. Food supply even at some sacrifice is more so, and in the latter case a reward will accrue. Poultrymen are showing a great and ready generosity in giving eggs for our wounded soldiers, and we heartily congratulate the promoters of the National Egg Collection upon the success of this excellent scheme. What we wish also to see is prevision in the general work of our industry.

### Laying Competition at Burnley.

We have given so much space in the present issue to the Harper Adams Competition that it is impossible to do more than summarise the results arrived at by the Northern Utility Poultry Society, a report of which is to hand, leaving this over for fuller treatment. This is specially important by reason of the fact that there were practically three competitions—namely, small house, semi-intensive, and local, the last of which was in small houses. In the two former the comparisons are specially interesting and valuable. The average eggs laid



per bird in the entire competition were respectively : Large house, 167.13; small house, 172.98; for heavy breeds—large house, 164.65; small house, 178.25; light breeds—large house, 169.23; small house, 168.10. These are very suggestive figures. The same works out in money values. The highest average in large house was Anconas (181.81), and small house, White Wyandottes (192.35). The committee of this society is to be congratulated upon the result, especially as there is a substantial profit on the year's work unaided by public grants or subscriptions.

### A Welsh Inquiry.

As an indication of recognition that an increased production of eggs and poultry is demanded, we note with satisfaction that the Board of Agriculture and Fisheries has commissioned Mr. Edward Brown F.L.S., to undertake an inquiry into the poultry industry of Wales. Mr. Brown is engaged in visiting all sections of the Principality, interviewing producers, consumers, and traders, holding conferences in each

county, and, we assume, will present a report as to present conditions, prospects for the future, and opportunities for development similar to those which he has previously written as to other countries. This report will be anticipated with great interest, and we expect it will form a basis upon which may be built definite and determinate constructive action. That is all to the good, and we hope this new departure on the part of the Board may be followed up in several districts of England, where a similar stimulus is equally necessary. There is, in fact, no part of Great

Britain where work of this nature would not have valuable results. What is urgently required is co-ordinate effort on clearly defined lines by central and local authorities.

### Reynard and His Victims.

The fox question has burst out again with redoubled vigour. It is evident that something will have to be done, and that speedily. We had hoped that the circular issued by the Duke of Beaufort last autumn, on behalf of the Masters of

Foxhounds' Association, suggesting the keeping down of foxes owing to the partial suspension of hunting, would have been loyally responded to. In some hunts that has been done, but the instances are very few indeed. Losses are being reported on all hands to a greater extent than ever, and at a time when the development of our food resources is of supreme importance. We came across an instance the other day of a man who had lost £21 worth of birds in this way within a short

period without a penny of compensation. Many of the birds were within runs. Wire-netting is no deterrent to a predatory fox. Meanwhile poultry-keepers are helpless, unless they take the law into their own hands, which is not always possible, though in some instances such is done. A hunting man the other day stated that he believed a million fowls are killed by foxes in England and Wales every year, which means something like six per cent. of the total stock and a loss to poultry-keepers of £200,000 per annum. Meanwhile the Fox Bill brought into the House of Commons is held up because it is contentious legislation.



**PRINCIPAL P. HEDWORTH FOULKES, B.Sc., F.E.S.**

Harper Adams Agricultural College, where the most successful of all laying contests has recently concluded. (See pages 42—47.)



## THE HARPER ADAMS COLLEGE.

By THE EDITOR.



AGRICULTURAL EDUCATION in the form of exact systematic instruction dates back only about fifteen years, although, previous to that date, institutions existed for the purpose of providing a training in agricultural science for landowners' sons. Colleges of this kind, however, did not reach those whose desire it was to learn the business of farming with the object of making their living on the land. For such, the only course open was to become a pupil on the farm,

form in a fraction of the time under a professional teacher.

A question often asked is, What is the best method of learning the business of farming? Experience has shown that the pupil receives the soundest and most satisfactory training who, after leaving school, takes the two years' farmers' course at an agricultural college and then strengthens this by one or two years' residence on a farm in the district in which he intends to start business. The young farmer, having had



GENERAL VIEW OF THE HARPER ADAMS AGRICULTURAL COLLEGE.

and there he was greatly handicapped; he was left to himself to acquire in the fields by imperfect observation and slow experience such knowledge of agriculture as he could pick up. Few farmers who receive pupils undertake the onerous task of instruction, and the young man who goes to learn farming on an ordinary farm is met with almost insuperable difficulties; the innumerable technical terms used by the agriculturist baffle him, and the average farmer is not by nature or training a teacher, and cannot convey the knowledge he possesses to his pupil, the result being that the young student is left to learn by his own efforts, and he takes years to learn imperfectly that which could have been learned in an exact

his powers of observation developed at an agricultural college, no longer needs a tutor, but can learn by his own efforts, not only from the particular farm on which he is working but from all the methods of agriculture carried on in the district. It is not advised that students should take farms immediately after leaving college. As in all other industries, business capacity can only be gained by experience, and it is an advantage to learn something of the men to be dealt with before risking capital in any district.

### A LEADING COLLEGE.

One of the leading agricultural colleges in the kingdom—and certainly the best-known one to



those who take a special interest in industrial poultry-keeping—is the Harper Adams College, situated about two and a half miles from Newport, Salop, on the Shrewsbury road, in the village of Edgmond. The surrounding country is well wooded, and forms part of the Shropshire Plain. The Wrekin is about eleven miles away, and the Welsh mountains can be seen in the distance. The elevation is about 250 feet above sea-level, and the open character of the country, together with the sandy formation, render the district a particularly healthy one. The surrounding country is of considerable agricultural importance; some very excellent examples of British farming are found within easy reach of the college. Visits to these farms are paid from time to time, as well as to several good agricultural markets, and agricultural shows held in the district.

The college opened in April, 1901, with five students, and the number has gradually increased until during last year upwards of 120 students have attended the various courses. The total number of students who have entered college during the thirteen years is 745, and a noticeable feature is the proportion of farmers' sons and others connected with the land who have taken advantage of the facilities brought within their reach by the munificence of the founder; no less than 74 per cent. of the total attending being represented by such students. Of the 745 students who have entered college during the past thirteen years, no less than 68 per cent. came

and poultry-keeping. If a personal word is permissible, we should like to put on record how great a debt we owe to the Principal for the agricultural knowledge we possess. The writer had the privilege in 1894 of being the first agricultural student at the then newly-formed agricultural college at Reading, where Mr. Hedworth Foulkes was assistant lecturer. For two years I had the privilege of being instructed by him, of listening to his lectures and gaining practical agricultural experience. I regard those two years as among the most valuable I have spent, and it is pleasing to be able publicly to acknowledge my debt to Mr. Hedworth Foulkes.

#### THE FARM.

With the exception of a small portion (rented), the farm is owned by the college. It is about 236 acres in extent, of which 154 acres are grass and 82 acres are arable, the college and farm buildings being conveniently situated in the centre. The soil varies from a strong to a sandy loam and rests on the new red sandstone formation. The grass land is all old pasture, some of which is capable of fattening a bullock per acre. It produces an abundance of keep in the summer months, which renders it peculiarly suited for carrying a dairy herd, and the summer grazing of young cattle.

A breeding flock of sheep is kept and bred from for a season, the lambs and ewes being fed off together. The practice of folding sheep on the root crop is also followed on the lighter land of the farm.



**PART OF THE FARM BUILDINGS.**

from Shropshire and Staffordshire, thus showing the influence the college bears locally.

#### THE PRINCIPAL.

Particularly fortunate is the college in its Principal, Mr. P. Hedworth Foulkes, B.Sc., F.E.S., and in its staff, including, as it does, some well-known authorities on agriculture, chemistry, botany, veterinary science, dairying,

The arable land produces heavy crops of cereals, roots, and clover, and the successful exhibits of farm produce at the agricultural shows in the district prove it to be of the best quality.

The farm buildings were completed in 1900, and are built upon the most modern principles. They comprise carthorse stables, with separate loose box, harness room and coach house; main shippin with ties for twenty-four milking cows,

two calving boxes, and a bull box; a second shipped for eight cows, and three loose boxes conveniently placed for feeding cattle and for carrying on experiments. The yards, of which there are three, are so placed that they are protected by the other buildings on the north, east, and west; they are open, with covered sheds at the sides. The small yard for pigs has opening into it five large sties, with a mixing and boiling house; the large store tank below the floor in the mixing house is connected with the dairy, so that the skim milk and whey can be run down without the labour of carrying.

The live stock includes a herd of Shorthorn dairy cattle, which contains a number of exceptionally deep milkers; most of the calves are also bought so that rearing may be seen at all times of the year; the heifer calves of the best milkers are brought into the herd.

A flock of sheep of about ninety breeding ewes is kept and various crosses carried out. In addition to these, wethers are bought for winter feeding on roots.

Pigs of the middle-white breed are bred, fattened, and sold for pork or bacon.

The carthorses are of the Shire breed, of a strong useful stamp, suitable for agricultural work. Mares are kept for breeding purposes.

For accommodating the breeding fowls, two ranges of large pens have been built, and these pens are so arranged that the birds can be given a free grass run when desired. The houses are of the most modern type and are fitted with movable glass slides and scratching-sheds. Colony poultry-houses are scattered over the farm. The main poultry building, which is situated in a central position, consists of a specially constructed incubator house, plucking room, egg store, and cramming-shed. The department is amply supplied with incubators, brooders, &c., of the various types, and also with pens and cramming machine for the production of table poultry.

The stock consists of pens of the most popular utility breeds of the day, and trap-nesting is done with a view of improving the laying capacity of the strains which are kept.

The dairy, which stands on the north of the gardens, is built in a picturesque style with a verandah on three sides. The rooms are allocated to the different kinds of work that is carried on, and include buttermaking room, cheesemaking room, hard cheese ripening room, soft cheese and press room, wash-house, heating chamber, &c. The rooms are all equipped with the necessary appliances, and various types of separators are included for teaching purposes.

## THE 1913-14 LAYING COMPETITION AT THE HARPER ADAMS AGRICULTURAL COLLEGE.

By "BREEDER."

"The general results of the first Twelve Months' Poultry Laying Competition, held at the College in 1912-13, proved that such competitions had a valuable educational side, and demonstrated most clearly, by the keeping of accurate records, that under proper treatment and management the egg-laying qualities of poultry could be made to exceed the usual returns obtained by the average poultry-keeper. By having trials open to the public and by making awards for merit, it has been possible to attract, not only different breeds, but also birds of a wide variety of strains in the same breed."



O writes the principal of the college in his Foreword to the Report of the 1913-14 test, which has recently been published. If the results of the first competition indicated the possibilities as regards laying, the same and more can be said of the results obtained during the run of the 1913-14 test. The results in all directions are exceptional; in fact, a whole string of records has been created. They certainly demonstrate most clearly that "the laying qualities of poultry could be made to exceed the usual returns obtained by the average poultry-keeper." The question arises, however, as to how far they may be made to exceed present average returns.

For the average poultry-keeper to expect that he can obtain an all-round result of 187 eggs apiece from a flock of 300 layers, at a value of 19s., is for

him to expect the unlikely. Feeding for egg-production requires special gifts, and I do not think I am saying too much when giving it as my opinion that even the owners of the winning pens would not be likely to achieve the same results. This competition has proved the most successful of any which has hitherto been held, and great credit devolves on all those concerned. The college authorities, the late manager, Mr. F. W. Rhodes, and Mr. T. Hedges, the poultryman, have united to produce remarkable results. Mr. Wil Brown, the present poultry lecturer at the college, has compiled the Report, which is most excellently done, containing, as it does, many tables of exceptional interest and value. If one may criticise the Report, I would say that it contains too much information, if such a thing were possible. The average poultry-keeper would be



bewildered if he tried to assimilate all the figures published, but fortunately the arrangement is so excellent that any line of observation may be followed right throughout the record of each pen or bird with no trouble whatsoever.

It is impossible in the compass of an article of this description to refer in detail to the many statistics given. All we can do is to mention a few outstanding features.

I was glad to see that the compiler of the Report pointed out that breed averages are more im-

This will be seen at a glance by the following table :

Breed.	Pens.	Birds.	Average per Bird.	No. of Eggs.	Value.
White Wyandottes .....	24	144	188.25	19	2 <sup>1</sup> / <sub>2</sub>
Buff Orpingtons .....	3	18	155.72	16	1 <sup>1</sup> / <sub>4</sub>
Buff Rocks .....	3	18	193.55	19	8
Rhode Island Reds .....	2	12	161.25	16	7
White Leghorns .....	15	90	201.43	1	0 3 <sup>3</sup> / <sub>4</sub>
Black Leghorns .....	2	12	181.8	18	1 <sup>1</sup> / <sub>4</sub>
Croad Langshans .....	1	6	102.5	9	2 <sup>1</sup> / <sub>2</sub>

As was explained to me on the occasion of my last visit to the competition, the rumours regard-



GENERAL VIEW OF SOME OF THE PENS USED DURING THE LATE TWELVE MONTHS' LAYING CONTEST.

portant than the individual achievements of special birds. It is stated that

The laying records of individual birds form an interesting study. The figures relative to the breed averages, however, undoubtedly possess a higher educational value. The fact that the heaviest layer produced 288 eggs in 365 days—a record achievement in any laying competition—indicates the possibilities of individuals. The record of the breeds, however, gives more authentic figures. The 144 White Wyandottes (24 pens) averaged 188.25 eggs, with a value of 19s. 2<sup>1</sup>/<sub>2</sub>d. apiece, and the 90 White Leghorns (15 pens) averaged 201.43 eggs, with a value of £1 0s. 3<sup>3</sup>/<sub>4</sub>d. each.

This attitude will be endorsed by the majority of poultry-keepers, but, as is explained in the next paragraph of the introduction, on account of the fact that the various breeds were unevenly represented it is difficult to make accurate comparisons.

ing the outbreak of disease have been exaggerated. Whatever cases of disease occurred were not due in any way to lack of attention or care on the part of the college staff. Mr. Wil Brown makes this plain in no uncertain terms. Disease was introduced when male birds were received for mating purposes. Sufficient care was not exercised by owners when forwarding cockerels. It is stated that “such carelessness is unfair to the other competitors”; and again “some owners suffered considerably through the manifest carelessness of others.” It would be difficult to put the matter in plainer terms.

I have read a considerable number of articles in which one result is severely criticised. It is in connection with the number of unrecorded eggs. In all 56,184 eggs were laid, and of this number only 41 were unrecorded. This is a thing that



happens only once in a lifetime. Up to the end of the fourth period (16 weeks) only one egg was unrecorded; in the present competition during the same time there have been 31! The small number is unexplainable, though Mr. Wil Brown endeavours to find an explanation for it.

In the Report the pens are divided into their respective breed sections, and therein each pen is dealt with, and the following particulars given:

The number of eggs laid by each bird during each of the 13 periods of 4 weeks.

believe. The birds in this test came from some of the finest strains in the country, and yet only one pen appears to have been composed of birds of this degree of excellence. The individual records of the birds in the winning pen (White Wyandottes) were as follows: 201, 211, 227, 230, 231, and 238. This makes a total of 1,339 eggs, an average of 223.17 per bird.

I append the table to which reference has been made, since it shows what has been accomplished in the direction of the production of heavy layers:



THE TYPE OF POULTRY-HOUSE USED IN THE LAYING COMPETITION.

The total egg-production each period, with value and position of pen.

The total and average number of eggs, with value for the 365 days.

The percentage of graded eggs credited to each bird and the percentage of the total.

The weights of the birds on arrival and return, with increase or decrease, and the date of hatching and date of commencement of laying.

The short description of the birds comprising each pen adds to the interest.

The average results of each breed section are dealt with for each period, the records of the best and poorest layers are given, and the position of the best pens throughout the test is added.

Finally, the breed section results are brought together and given in tabular form.

Two tables of extreme interest are included in the Report. The first deals with the number of birds of determined degrees of fecundity. A lot has been written as to the possibility of breeding a 200-egg strain, but evidently this is not quite so easy to accomplish as some would have us

NUMBER AND PERCENTAGE OF BIRDS.

Laying	No. of Birds.	280 and over	260 to 279	240 to 259	220 to 239	200 to 219	180 to 199	160 to 179	140 to 159	0 to 139	Total.	Per- centage
280 eggs & over	3	3									3	1'00
260 to 279 eggs	8	3	8								11	3'67
240 to 259 eggs	19	3	8	19							30	10'00
220 to 239 eggs	41	3	8	19	41						71	23'67
200 to 219 eggs	59	3	8	19	41	59					130	43'34
180 to 199 eggs	57	3	8	19	41	59	57				187	62'34
160 to 179 eggs	36	3	8	19	41	59	57	36			223	74'34
140 to 159 eggs	26	3	8	19	41	59	57	36	26		249	83'01
0 to 139 eggs	51	3	8	19	41	59	57	36	26	51	300	100'00

The second table deals with the relationship between the date of the first egg laid and the total number produced. It demonstrates the truth of what has for long been an accepted theory—namely, that the early layers prove to be the heaviest layers. It is pointed out, however, that when the birds were laying on arrival, the journey, change of condition, and change of climate tended to stop laying for a time. This is shown in the following table:



Egg Production.	No. of Birds.	Total No. of Eggs.	Average No. of Eggs per Bird.	No. of Birds laying over 200 Eggs.	Percentage of Birds laying over 200 Eggs.
20 and over during first period	29	6,220	211.0	19	65.5
10 to 19 during first period ..	60	12,913	215.2	41	68.33
1 to 9 during first period .....	51	10,156	199.1	30	58.8
20 and over during second period	10	1,998	199.8	4	40.00
10 to 19 during second period	30	5,921	197.37	15	50.00
1 to 9 during second period..	21	3,942	187.7	7	33.3
Laid during third period.....	49	8,263	168.6	13	26.5
Laid after third period.....	49	6,771	138.1	1	2.04
Never laid at all .....	1	—	—	—	—
Totals .....	300	56,184	187.28	130	43.3

In such a competition the feeding must play an important part. This section of the Report is very informative.



MR. T. HEDGES,

to whose unremitting work and attention the success of the Harper Adams Laying Competition is largely due.

The following general information is given :

The object in feeding throughout the test has been to give just that kind, quality, and amount of food as would keep the birds in an active and laying condition. It is impossible to give in tabular form the changes that were made in the daily diet during the whole 365 days. The following points will indicate, however, the system that has been followed :

(1) It has been found that a steady, though small, amount of fish meal will tend to produce a constant supply of eggs. The amount used, however, was only 2.4 per cent. of the total food given.

(2) Green food has been used extensively in the form of nettles, lettuces, dandelions, vegetables, clover, and lawn grass. All were steamed, with the exception of the last-mentioned.

(3) The first feed in the morning always consisted of hard grain; if the weather looked like turning in wet, soft mash was fed about 11.30, with corn in the afternoon; otherwise the midday meal consisted of grain and the last feed in the afternoon of mash. In the summer the meal at noon was omitted. During the test it has been found a mistake to give a full meal

in the afternoon, since this tended to increase the number of soft-shelled eggs. The birds yield a larger number of eggs if they are fed gradually during the day and given only a slight supper at night.

A variety of foodstuffs was used, totalling 26,860 $\frac{1}{4}$ lb. for the 300 birds, or 89 $\frac{1}{2}$ lb. per bird per year, or just about 4oz. per day. The cost of feeding, exclusive of grit and oyster shell, was 7s. 0 $\frac{1}{4}$ d.

The foods employed, with their percentages, were : Biscuit meal, 6.7; sharps, 17.44; oatmeal 3.9; bran, 3.2; fish meal, 2.4; bone meal, 0.07; vegetables, 3.5; wheat, 24.89; oats, 20.2; cracked maize, 3.7; mixture, 14.0. The mixture was made up of buckwheat 5 parts, dari 8 parts, broken peas 8 parts, millet 2 parts, hemp 1 $\frac{1}{2}$  parts, and linseed 1 $\frac{1}{2}$  parts.

More food was consumed during the three months of heaviest laying (February 1 to April 30), when the average amount fed was 4.3oz. per day. Over the rest of the year the quantity was under 4oz. per bird per day.

The total number of eggs laid was 56,184, at a food cost of £105 4s. 7d., and valued at £285 9s. 3 $\frac{1}{2}$ d. On this basis the food cost of each egg was  $\frac{1}{2}$ d., and valued at 1 $\frac{1}{4}$ d., thus leaving a balance of  $\frac{3}{4}$ d.

The size of the eggs was a great improvement on what was commonly the case in the early tests. The percentage of eggs 2oz. and over in weight was 90.2; between 1 $\frac{3}{4}$ oz. and 2oz. 9.2, and below 1 $\frac{3}{4}$ oz. only 0.6.

On two occasions the eggs were weighed in bulk. On February 1 they worked out as 16 pounders, and by August 1 they averaged 17lb. to the 120. This is excellent, seeing that the birds were all pullets.

A number of the Leghorns went broody, and in each case the birds evincing the desire to sit laid a smaller number of eggs than the breed average.

The following records were created :

(1) Pen 18, White Wyandottes, laid 492 eggs, valued at £3 11s. 5 $\frac{3}{4}$ d., or an average of 82 eggs (11s. 11d.) per bird, during the first four periods of four weeks each. This was then a world's record for any official test, but the best pen in the present ten months' competition at the same college has created a better. The average in this case is 87.17 (value 12s. 6d.) in the 112 days;

(2) The winning pen averaged 223.17 eggs, with a value of £1 4s. 5 $\frac{1}{4}$ d. each bird;

(3) The heaviest layer produced 288 eggs at a value of £1 10s. 9d.;

(4) The average over the whole flock was 187.28 eggs, valued at 19s. 0 $\frac{1}{4}$ d.;

(5) The difference between food cost and egg value was 12s. per bird;

(6) One hundred and thirty birds, or 43.3 per cent., laid 200 eggs and upwards; and

(7) One bird never laid at all.

A copy of the Report—and it is well worth having—will be sent by the Principal, Harper Adams College, Newport, Salop, on receipt of a twopenny stamped and addressed envelope.



## SUBURBAN POULTRY-KEEPING.

By EDWARD BROWN, F.L.S.



HAT much more might be done in the direction of poultry-keeping in the neighbourhood of our great cities and manufacturing districts is unquestionable, and whatever will enlarge opportunity in that direction deserves the fullest encouragement. Recently an announcement was made that Mr. Will Crooks, M.P., is interesting himself in this proposal, with a view to utilising waste spaces for poultry, thus enabling working people who live near by to profitably employ their spare time in this way, and to produce a greater portion of their food supply. Such would be a decided step in advance, and should enhance home supplies to a considerable extent. There are scores of thousands of men and women who would gladly avail themselves of such an opportunity of supplementing their ordinary labours, the moral, as well as the pecuniary, benefits of which would be very great, more especially in view of the times which are in front of us when the war is over. There are, however, several points demanding careful consideration.

### THE QUESTION OF LAND.

The great hindrance which has stood in the way has been either that land was unobtainable at a reasonable rental or, if available, was too far away to be of any use in the case of poultry which need daily attention. That, of course, is specially the case over large sections of London and other great cities. Some time ago I visited allotments near one of the Midland towns which artisans had been induced to take up. These were absolutely useless so far as poultry were concerned, in that to reach them involved a journey of five miles. For at least half the year men could not get to them in daylight on account of their hours of labour, except on Saturdays and Sundays. For growing vegetables that might fulfil the purpose, but with fowls, apart from the tram fares in getting there and back, cutting into the returns, the scheme was hopeless. One fact is evident—namely, that to succeed the place must be within easy reach of the poultry-keeper. At the same time, there are frequently vacant spaces available which, temporarily at least, could be thus occupied and be turned to good purpose instead of lying waste. Two points are essential: First, that the rental shall be reasonable; and second, that there shall be a certainty of tenure for a stated time. The charges often made are, to speak plainly, scandalous. Some of the Burnley poultry allotments are rented at £10 per acre, which, for land that was practically valueless for other purposes until re-

quired for building, is out of all bounds. This is not the place for dealing with what may be regarded as political questions, but if land so held up were rated to the full extent unless used profitably, it would be nothing more than justice. If Mr. Crooks or others can ensure that the rental charged shall be in accordance with cultivation value, the way now closed would be opened. On the outer London ring much could be used in this way which is either refused or a rental asked that is prohibitive. On the other hand, no one can be expected to spend money on fowls and equipment if he may be turned off at a week or two's notice. Many cases of hardship have been known in that way. For reasons given below this aspect of the question is important. Without a solution is found expansion will be comparatively slow and limited.

### POULTRY AND POTATOES.

In not a few instances the tenure of town plots of land is too short to permit of cultivation. Under such conditions the risks of tainted soil are greatly minimised, because the birds have to be removed before much harm is done. Where that is not so, and occupation extends beyond a year, then for birds permitted to be outside their houses, cultivation becomes a necessity, otherwise failure is bound to follow. That fact requires to be pressed home. As I have pointed out previously, twenty-five of the larger fowls will produce a ton of moist manure in twelve months. For a year they may safely be kept on, say, an eighth of an acre, or even less if the house be a roomy one. Then comes the trouble. The truly successful way would be, where there is a fair certainty of retaining the plot for a longer period, to keep half the number stated and divide the ground into two parts, one of which will be occupied by the fowls and the other cropped. At the end of the twelve months these would be transferred, and that vacated planted. For this work either vegetables or potatoes should be grown, the latter for preference, as to do so would necessitate complete digging over. In fact, poultry and potatoes should be the suburban poultry-keeper's ideal and his practice. There is no reason that I can see why many of our smaller households, where land can be obtained, should not thus produce all the eggs they require and a substantial portion of the potatoes used by them. The one would help the other, and the *bête noir* of the smaller poultryman—namely, tainted soil—be obviated. It is evident, however, that a precarious tenure would not warrant doing so, thus bringing us back once



more to the first position. Until that is decided we shall not make much progression.

#### EGG-PRODUCTION.

Under such conditions, the line to be adopted must be severely restricted to egg-production—first, foremost, and last. Failure more frequently results from attempting too much than too little. It is sometimes pitiable to see the mix-up on some places. Fowls, ducks, chickens, all herded together, each one counteracting the other. The way

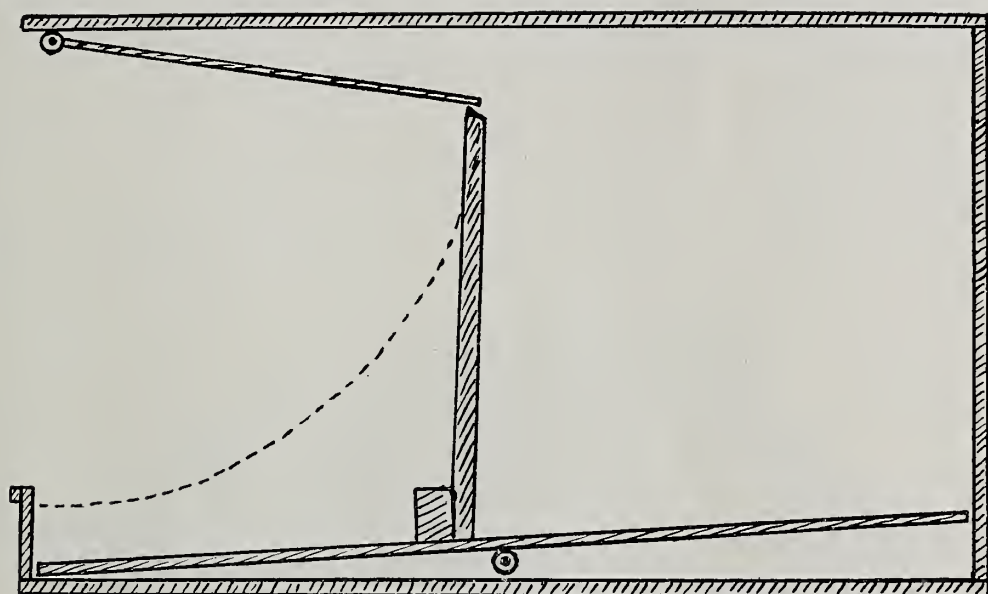
then chickens may be reared so long as they have enough space and can be kept apart from older stock. Otherwise the plan to adopt is to buy grown pullets, keep them for a couple of years, and then renew, retaining them merely as layers. This plan dispenses with the necessity for keeping a male bird, the cost of whose food for two years will pay for at least the purchase of a couple of hens. With careful selection of breed or cross, proper feeding, judicious management, and maintenance of hygienic conditions—that is, rigid

cleanliness all the time—experience has shown that a very substantial profit can be made in relation to the cost of equipment. Under such a system egg-production may be successfully carried out, and there is no reason why a dozen hens should not lay from 1,500 to 2,000 eggs in the twelve months, at a cost of not much more than a half-penny each, more especially if household scraps and garden produce are used as part of the food. To do so will demand good management and regularity in attention, with economical feeding. To attempt to raise table chickens in a place of this kind would be a serious mistake, although there will be occasionally a fowl for consumption.

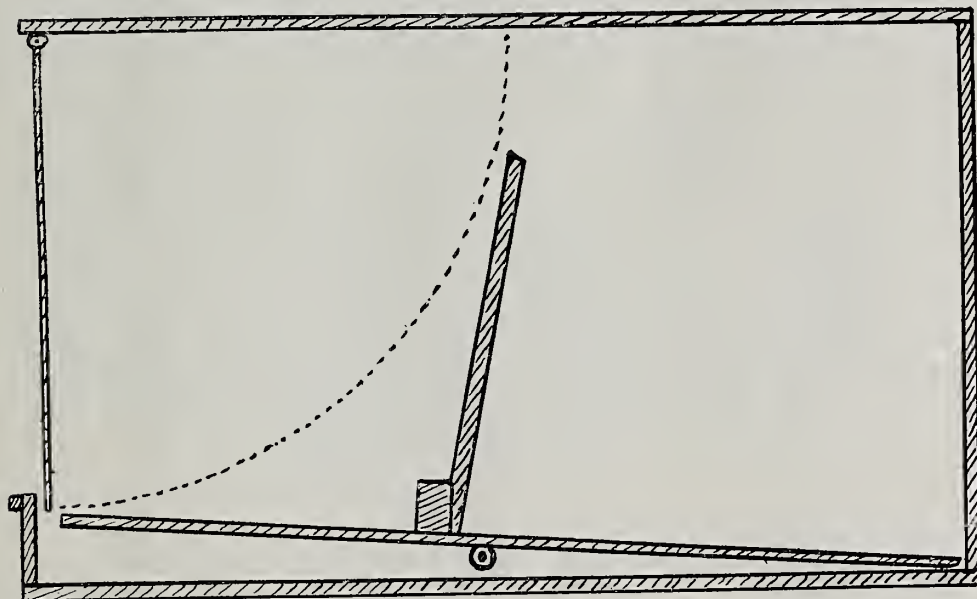
#### BREEDING A MISTAKE.

Reference has already been made to the danger of attempting too much. There is no direction in which that is more apparent than in using fowls kept in the way indicated as breeding stock. It is of no use blinking the fact that an effect of conditions such as those named is to reduce the reproductive powers of the hens to be the parents of healthy, vigorous chickens. It is only what we

find in connection with other classes of stock. The prime factor to secure that result is for the parents to live under more or less natural conditions, and for the chickens to be raised on range, so that they may store up a reserve of vigour which may be expressed later in the shape of eggs. To do what is here suggested simplifies the work by restricting it to what can be accomplished successfully. I do not suggest that the full effects of the opposite method will reveal themselves fully in the first



TRAP SET.



TRAP RELEASED.

Diagrams Showing Working of Trap-Nests used at the Harper Adams Laying Contest.

of success is to do one thing, and do it well. I quite understand the attraction of hatching and rearing and the pleasure derived from bringing up a flock of chickens, for my first efforts, forty years ago, were on the vacant site whereon a house was afterwards built, and where I raised birds which won me many prizes, finding, however, that what can be done for one or two years cannot be continued on so limited an area. Where there is sufficient space beyond that used as stated above,

one or two generations, dependent to some extent upon the nature of the stock. It is the ultimate effect we have to guard against. The wise plan, therefore, is to buy pullets in the early autumn, taking care, of course, that these are obtained from breeders who have reared in a sensible manner. The cost may seem to be greater than by rearing on the spot, though I question whether it is so. Even where the ground enables space to be devoted to rearing chickens, it is much better to buy day-olds rather than hatch eggs produced upon the place, or to purchase eggs for hatching. Where either of these methods is adopted, it is essential that care be taken as to where chicks or eggs are obtained. There is only too much neglect on the part of owners of hatcheries as to whence eggs are procured to fill their incubators, or carelessness in the keeping of fowls for that purpose, leading to the high degree of mortality which is met with among young birds. As to that something has been said before, and I need do no more than mention it now. The small poultry-keeper is well advised to leave breeding to be carried out by someone other than himself.

#### INTENSIVE METHODS.

That the system known under the above designation has a place in the future of poultry-keeping I have no manner of doubt, but that this place is not what is generally appreciated I am equally sure. As a commercial proposition on a large scale, with a view of earning a living, it is not, in my opinion, practical. For back-yarders and suburbanites it can be made to answer in a supplemental fashion, provided that its limitations are realised and the method is rigidly and carefully carried out. At the same time we have to remember that the cost of feeding is high, especially in these days, for everything has to be provided. Still, it is reasonable to assume that the winter egg-production, as well as the gross annual total, will be greater than under ordinary methods, otherwise it would break down, because the cost would be higher than the returns. Where it has failed and will fail is when birds kept in this manner are used as breeding stock, for the keeping of fowls under such conditions makes for degeneracy, emphasised more strongly as the tale of eggs is individually increased. I am firmly convinced that the whole future of intensive methods is bound up chiefly in the recognition of what is here stated, and that its success will depend upon purchase of birds raised on range and bred from stock kept in a like manner, merely in this case also keeping the hens intensively as layers and nothing more, killing them off when they have accomplished that purpose. This would require systematic breeding in some districts for sale to poultry-keepers in the more densely populated areas, to which extent the benefit would be disseminated over a greater number of people. I look forward to the time when the hilly sections of the country will be used

extensively for breeding, just as are some districts for sheep, and we shall have resources in this direction not at present available. That would make for success.

#### FEEDING.

Practical experience shows that the chief cost in keeping fowls under the conditions named is for food, and that the greater the number so maintained the higher is the food expenditure per hen. An artisan household may provide scraps which, with a limited amount of purchased feeding stuffs keeps down the average cost, leaving a considerable margin between that and the value of eggs laid. If the fowls be doubled in number, the scraps have to be distributed over them, and the supplied food is relatively greater for each. No natural food is available. Thus the profit is correspondingly less. Economy is, therefore, of the greatest importance. To that end careful study should be given to this question. At present prices of grain so will cost be high if these are mainly depended upon. What must be done, therefore, is to secure food that can be bought more cheaply. Many suggestions are being made in this direction. I am confident that as a result of high prices we shall learn to employ bulkier and cheaper classes of foodstuff. Probably by doing so the birds will be quite as healthy and equally productive, though there may be involved a greater amount of trouble.

What is required in all such developments is to walk warily and to recognise what are the limitations involved in a branch of poultry-keeping which is, however, capable of great extension.

#### EGG CARGOES FROM MOROCCO.

AMONG other encouraging elements in British commercial prospects comes the welcome announcement that the French Government, recognising English claims to something approaching preferential consideration, has now removed, so far as shipments to London are concerned, the recent prohibition of the export of Moorish eggs. Poultry-keeping by natives has increased most satisfactorily during the past decade, and in one year, according to official returns, eggs of the value of £200,000 were shipped, mainly to the United Kingdom and Gibraltar. The curious fact is that this very respectable figure has come about almost by accident in the total absence of poultry-farms conducted on large and scientific principles. When these are established, as seems probable in the near future, nothing will prevent Morocco exporting eggs to the value of £1,000,000 yearly. —*Morning Post*.

#### The Shortage of Turkeys.

Official figures issued by the London Market authorities in December revealed the fact that there was a shortage of poultry, as compared with previous years, of 1,250 tons from Austria-Hungary, 1,000 tons from Russia, 480 tons from Italy, and 80 tons from Serbia. On the other hand, the home supplies were better, especially from Ireland.



## POULTRY-HOUSES FOR SMALL HOLDERS.

**FOWL-HOUSES** can be built inexpensively when time is available for the necessary work. Timber already used for other purposes is often at command, or may be purchased cheaply, and, in the neighbourhood of great centres of population, large packing cases can sometimes be bought at low prices. Timber merchants are often able to sell cheaply such cuttings and shorter lengths of deals as are not generally required by their customers, and which can be fitted together for boarding the walls and roof of the poultry-house, or for making coops and runs. It is necessary, and is usually most economical, to buy new scantling for the framework of the house, the cost of which, however, bears only a small proportion to the whole.

### GENERAL PRINCIPLES.

In building a poultry-house the following important points should be observed :

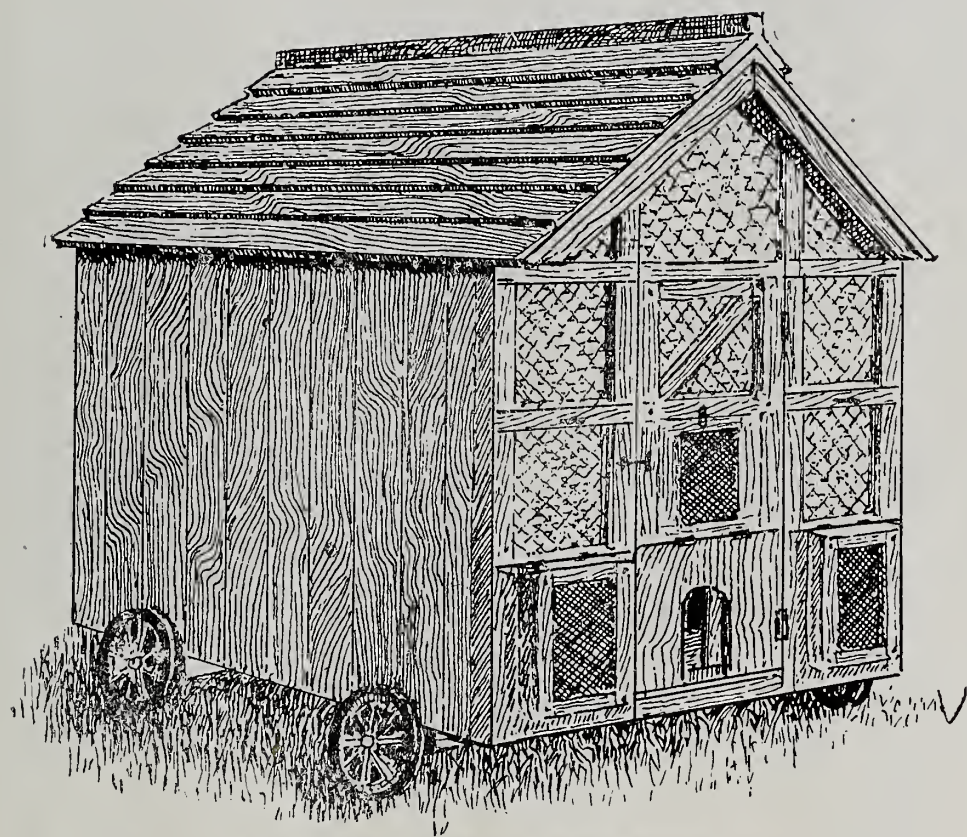


Fig. 1.—Field House for Twenty Fowls.

(1) With regard to material the timber should be sound and dry. The cost of deals is largely governed by the extent to which they have been seasoned. If newly cut there will be shrinkage and warping as the natural moisture evaporates. It is, therefore, true economy to pay, say, 10 to 15 per cent. more for thoroughly seasoned wood.

(2) Narrow deals are cheaper than broad ones. The prices named in the specifications on the next page are for narrow deals.

(3) Deals are sold by timber merchants by the square—that is, with a surface of 100 square feet; scantling for framework and joists is sold per 100ft. run.

(4) In regard to construction, the back, two sides

and roof of the house should be solid, and air- and water-tight. For this purpose well-seasoned, tongued and grooved deals are preferable, if tightly clamped together. These should be fixed to the frame perpendicularly. If fixed horizontally, special deals must be used, each overlapping that below. These are more expensive, having to be specially cut, and this method of construction requires a larger amount of timber.

(5) Ventilation must be adequate. It is best secured by making the house, which should always be the maximum height in front, what is called "open-fronted"—that is, a space 15 to 30in. above the floor should be boarded and the rest covered with wire netting. This ensures a constant circulation of air without draught. The inmates are quite comfortable even on the coldest night, and the air is not at such

times saturated with moisture, which is the case if ventilation is insufficient. To prevent rain driving in, a sloping or sliding shutter should be fixed outside. Open-fronted houses do not usually need windows, as the lighting is abundant. Sunlight purifies the atmosphere and kills many forms of bacteria and parasites.

(6) The internal fittings should be as simple as possible and capable of easy and immediate removal. Perches may be made of 2in. by 2in. scantling with corners smoothed off, resting on supports fixed to the sides, 15in. to 2ft. above the ground in portable houses, or 3ft. above the ground in a fixed house, with, in the latter case, a dropping board below, in order to give a greater amount of scratching space. Nest boxes in the former case should be raised 12in. and one compartment should be allowed for every four or five hens. With a little alteration orange boxes are excellent for this purpose.

(7) Cleanliness is supremely important. The whole house—roof, walls, and floors—should be regularly swept out; nesting materials should be renewed frequently, and lime washing or spraying with a good disinfectant twice a year is essential.

### TYPES OF HOUSES SUITABLE FOR ALLOTMENTS AND GARDENS.

On the larger allotments or small holdings—that is, such as approach five acres in area, where the fowls are not kept within enclosures of wire netting, and have, therefore, a measure of liberty—what is known as a portable or field house should be employed, either upon wheels or on runners, so that it can be removed frequently in accordance with methods of cultivation, or to prevent injury to the grass. Figs. 1 and 2 illustrate a suitable type of such houses.



What is known as the Colony System can be recommended upon allotments—that is, one-fourth the ground available is devoted entirely to the fowls for a year. It is enclosed by wire netting, which is removed bodily to enclose another similar area, the process being repeated annually, and forming a four-course rotation. Under such conditions, especially

supply of  $1\frac{1}{2}$ , 2 and  $2\frac{1}{2}$  in. French nails; optional, felting for roof and guttering (see below).

FRAME.—Front: 2 lengths, 5 ft. each, for sill and cross; 2 lengths, 6 ft., for roof; 2 uprights from roof stays to sill, 1 ft. 3 in. each; 1 cross tie, 2 ft., below apex. Back: 1 length, 5 ft., for sill; 2 lengths, 6 ft., for roof; 2 uprights, 1 ft. 3 in.; 1 cross tie above door; 2 uprights, 4 ft. 6 in., for door space.

Roof: 3 lengths, 6 ft. 6 in. Sides: 4 lengths, 6 ft. Floor: 1 length cross-wise, 3 ft. from each end, 5 ft. Two perches, each 5 ft. long, will be required. The total is  $116\frac{1}{2}$  ft. run.

Match boarding should be firmly nailed upon the frame, the roof projecting 3 in. at either end, for which allowance has been made. The timber required will be as follows: Front, boarded 2 in. up,  $8\frac{3}{4}$  sq. ft.; back, inclusive of door and cross pieces of the same material,  $21\frac{3}{4}$  sq. ft.; sides, 15 sq. ft.; roof, 78 sq. ft.; and floor, 30 sq. ft.; total,  $153\frac{1}{2}$  sq. ft., or with allowance of 24 sq. ft. for nest boxes,  $177\frac{1}{2}$  sq. ft. in all.

To prevent the entrance of rain at the apex of the roof a cap should be made, planed and carefully jointed, from 6 ft. by 6 in. boarding cut down the

centre; or iron guttering can be bought cheaply and fitted upside down; or if the roof is covered with felting, one length may be nailed over the apex.

Where the door is placed at the back it must fit tightly to prevent draughts, otherwise it would be better to make the front into a door, either wholly or partly. An excellent plan is to nail a strip of wood outside all around the door, overlapping  $1\frac{1}{2}$  to 2 in. on to the wall against which it closes.

If the house has to be moved frequently, wheels should be attached. In this case 3 by 3 in. wooden beams should be bolted right across the under frames of the house a foot from either end, to which the axles are attached, or stout iron axles 6 ft. long may be employed. The wheels should be not less than 9 in. in diameter with a 2 in. tyre. An alternative is to use runners fixed lengthways with ends curved upward. These should not be less than 6 in. broad. A horse is required for removal where runners are employed.

The two perches should be fixed at the back 15 in. above the floor and 18 in. apart.

The nest boxes should be removable, 15 in. square, 12 in. high, and without bottoms, standing upon the floor or upon the ground under the droppings board. If in sets the partitions and ends alone need be solid, as strips of wood back and front keep them firm.

Thorough creosoting or tarring outside will preserve the wood, and tend to keep down parasites. It is an economy to cover the roof with felting.

#### SPECIFICATION OF SCRATCHING-SHED POULTRY-HOUSE.

Houses of this class are permanent or semi-permanent, that is, they are not intended to be moved, and are therefore built with a rigid frame. If they are used for colony flocks, and are to be removed occasionally, the better plan will be to erect them in sections, that is, the roof, back, front, and sides

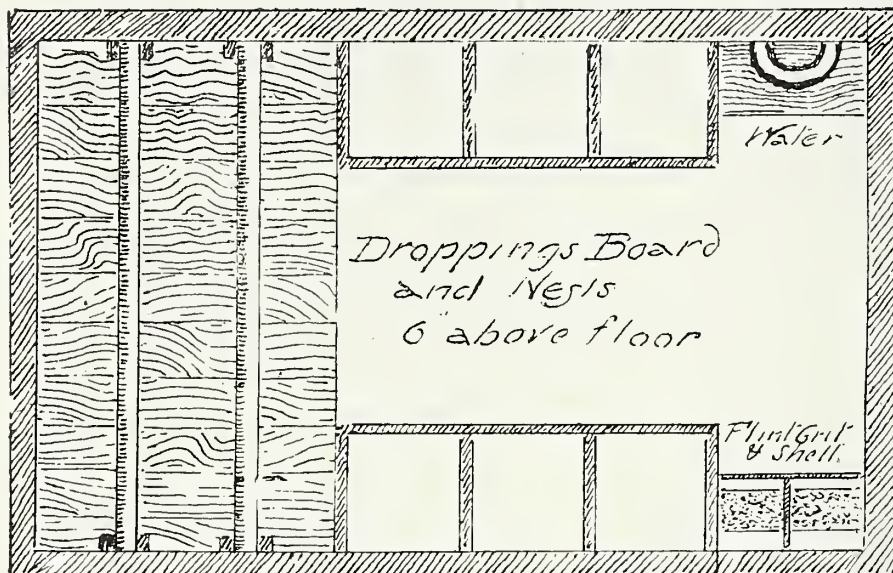


Fig. 2.—Ground Plan of Field House for Twenty Fowls.

if the enclosed areas do not exceed an acre, a scratching shed house is desirable to afford abundance of shelter and provide exercise, the fed grain being scattered among litter on the floor. On larger areas, especially if the land is arable, a scratching shed is not required.

On garden plots and where by reason of the limited amount of land available the runs must be small, the scratching shed system is also advised, the size of house being varied with the number of inmates. Figs. 5 and 6 give illustrations of a scratching-shed house. Upon garden plots and where land is very limited double runs should always be used.

#### SPECIFICATION OF APEX PORTABLE POULTRY-HOUSE.

In houses which must be moved frequently it is essential that the frame should be strong to stand the strain, or it may soon come to pieces. The joints should, in all cases, be tightly mortised, and where cross stays are used the ends should be cut and fitted into corresponding grooves in the uprights, as nailing does not afford sufficient resistance to the strain.

An apex house on similar lines to that illustrated in Figs. 3 and 4, may be 5 ft. wide, 6 ft. deep, and 6 ft. high to the point of the gable, with side walls  $1\frac{3}{4}$  ft. high, and boarding in front  $1\frac{3}{4}$  ft. high. The capacity is 15 adult fowls, or 20 growing chickens. Roof, sides, and back are solid, except that a door is made in the back. The front consists of boarding  $1\frac{3}{4}$  ft. from the ground, with 1 in. mesh wire netting above, and a triangular shutter. The roof may usefully be carried a foot beyond the front.

MATERIAL USED.—Scantling for frame, 2 in. by 2 in.; to reduce weight, 2 in. by  $1\frac{1}{2}$  in. may be used, but the heavier material should be used for the sills or bottom frame. Boarding, white deals, 5 in. by  $\frac{3}{4}$  in., tongued and grooved. Wire netting for front, 1 in. mesh. One pair of 9 in. hinges and lock or catch for door; a



should be made separately and bolted together. In that case 23ft. additional scantling and the necessary bolts and nuts will be required. For moving purposes it is a useful plan to fit the house with axles from which the wheels can be removed when the house is in position, one set of wheels thus serving for several houses. For this form the shed type is to be preferred as illustrated in Figs. 5 and 6.

A useful size is 8ft. square, 6½ft. high in front, 5ft. high at back; the roof, back, and ends solid; the front, in which is a door, boarded up 2½ft., with wire netting above and a fixed shutter in front 2ft. deep as a rainguard. The capacity of such a house is sixteen adult fowls, providing nearly 3¼ sq. ft. of floor space for each bird.

**MATERIALS USED.** — Scantling for frame 2in. by 2in.; boarding, white deals, 7in. by ¾in., tongued and grooved; wire netting in front, 1in. mesh; one pair 4in. butt hinges for door, and lock or catch; a supply of 1½, 2, and 2½in. French nails; 24ft. run of felting for roof; and 9ft. of guttering to be fixed at back of roof, with the necessary supports.



Fig. 3.—Apex House for Fifteen Fowls.

**FRAME.**—Front: 2 uprights, 6½ft. each; 2 horizontals, 8ft. each; 4 horizontals, 2ft. 9in. each; 2 uprights for door posts, 6ft. each; frame for door 19½ft. Back: 2 uprights, 5ft. each; 3 horizontals, 8ft. each. Two ends: two to support roof, 8½ft. each; two horizontals, 8ft. each. Roof: one cross tie, 8ft. Two perches, each 8ft. The total is 162½ft. run. A little allowance must be made for shaping the tops of the uprights for the slope of the roof and for supports of the droppings board under the perches.

Match boarding required will be: Front, boarded up, 2½ft., including door, 20 sq. ft.; back, 40 sq. ft.; two ends, 92 sq. ft.; roof (allowing to project over all round), 76½ft.; shutter, 8ft. by 2ft., 16 sq. ft.; droppings board, 7ft. 10in. by 2ft., 16 sq. ft.; nests, 30 sq. ft.; or 290½ sq. ft. in all.

In this form of house a floor is not necessary. Where the house has not to be moved it is an excellent plan to place a course of bricks under the walls and fill in the space with sand or gravel, or earth well beaten down.

The perches and nest boxes may be similar to those for the apex portable house, and the timber may be similarly treated.

#### DUST BATH.

Where fowls are on range or in large runs and the ground is broken no provision is required for a dust bath. If they are kept in small runs, however, a dust bath is essential in order

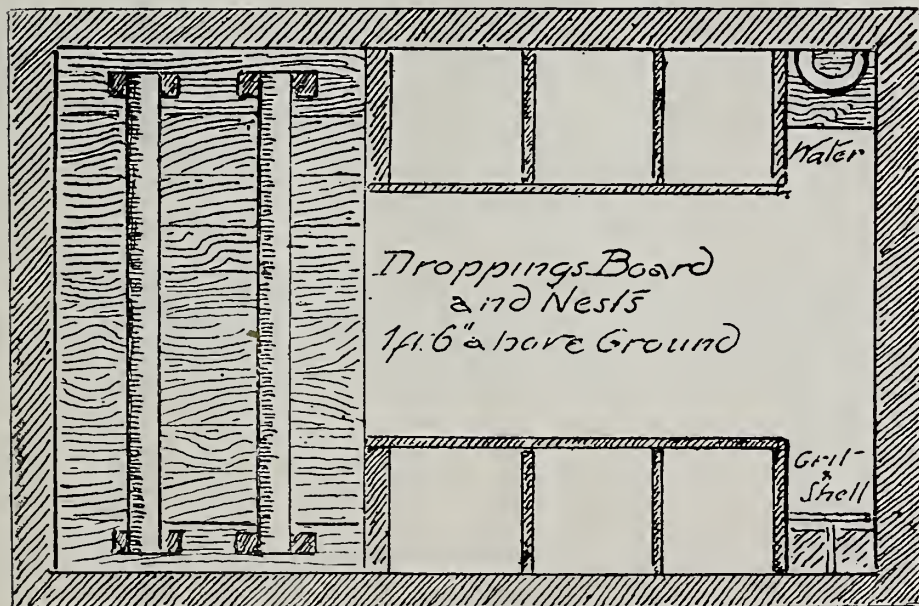


Fig. 4.—Ground Plan and Side of Apex House for Fifteen Fowls.



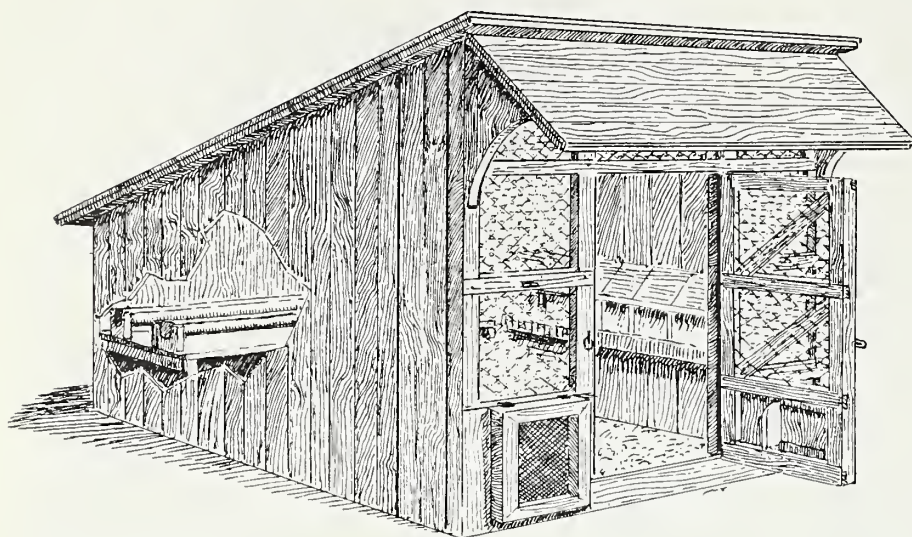


Fig. 5.—Scratching-Shed House for Sixteen Fowls.

to enable the birds to keep themselves free from parasites. An excellent form, triangular in shape, may be fitted into a corner of the house or run. Where used under cover it only requires to be boarded 6in. high all round, forming a movable box with three equal sides. The cover prevents the birds roosting above. If used outside it should be made with solid sides, leaving the front open above the retaining boards. One or two sugar boxes, which can be bought at 4d. to 6d. each, contain enough material for making an indoor or outdoor dusting box as the case may be.

#### Coops.

Many and varied forms of coops are used. Simplicity is both desirable and economical. A useful coop can be made from a sugar box. The lid should be taken off. One side of the box will form a floor and the other should be removed. Two of the lid strips should be cut into long triangular pieces, 3in. at the front down to 1in. at the back, and be fastened on to the open side by two pieces within at either side, so as to hold them firmly. The laths removed from the open side must be nailed across the sloping pieces, and with a strip from the lid will make the top, having the requisite incline to carry off rain, although it will be made watertight by a piece of felting or corrugated iron nailed over. Enough of the lid will remain to cut into bars 2in. wide, to be fixed 2in. apart, for the front; two bars should be loose for letting out the hen and cleaning. A coat of gas tar will preserve the wood.—*Journal of the Board of Agriculture.*

## POULTRY AND EGGS IN ARGENTINA.

ARGENTINA should be an exporter of poultry and eggs, but enormous quantities are imported every year. The duty on eggs is calculated according to weight. The imports under this head are consequently returned at 2,340 tons in 1912, or nearly double the imports of 1910.

New-laid eggs are very scarce in the capital and large cities, and the few obtainable fetch fancy prices. Imported eggs are retailed at 1s. 9d. to 2s. per dozen.

Poultry farming would seem to be possible without any great outlay of capital. A few acres of land rented

or bought on the instalment plan is all that is needed. Ordinary chickens a few weeks old bought at anything between 5d. and 7d. each sell after a period of six months at 1s. 9d. to 2s. each. The cost of feeding is insignificant, as the class of bird known as the "camp chicken" feeds in fields under alfalfa.

There is a good demand for prize birds, which are generally sold by auction at one of the central markets and usually fetch high prices. Poultry farming from imported stock is now being engaged in on an increasing scale in the neighbourhood of Buenos Ayres.

The Argentine fowls are bred in the open without the bestowal of the smallest care. Not even a fowl-house is provided, and the hens are allowed to lay their eggs in the open, where they are lost and the chickens killed by weasels. If poultry could be produced on a large scale on proper paying lines, and in a country like Argentina this should be an easy matter, there is no reason why a certain source of supply could not be created for export purposes. Poultry exported as refrigerated produce to Europe should find a ready market. These remarks apply equally to ducks and geese.—*Consular Report.*

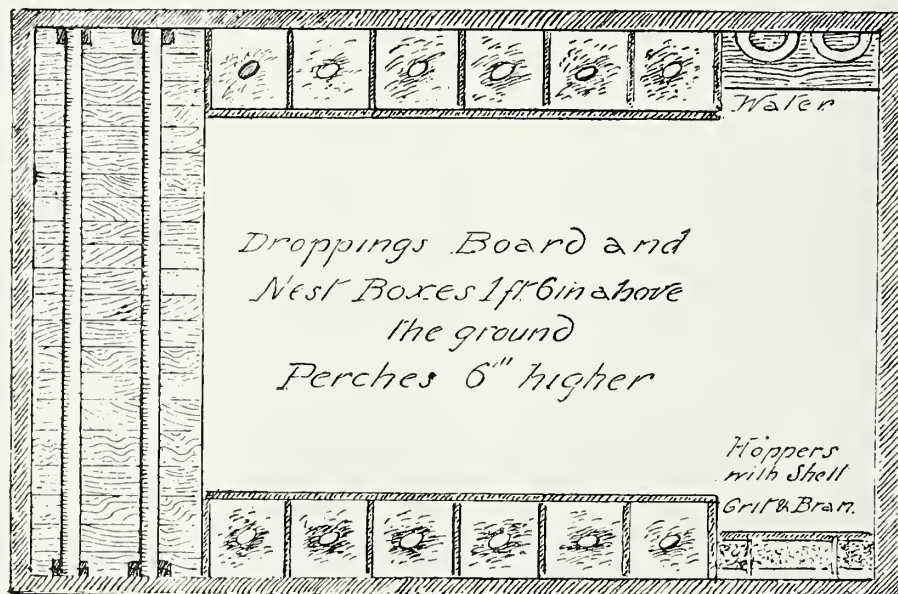


Fig. 6.—Ground Plan of Scratching-Shed House for Sixteen Fowls.



# BIOSCOPICAL VIEWS OF POULTRYDOM.

By ENOS MALPAS.

## V.—A POLITICAL VOLTE FACE.

**T**WENTY years is a long period to elapse between cause and effect. Sometimes, however, the full fruition is unduly delayed, yet finally the birds come home to roost. Such was true in the case I am about to narrate. What is stated must be carefully recorded, as the Member of Parliament who was concerned still sits on the benches at Westminster and the other party remains one of his constituents. If either should happen to read these lines, he will recognise to whom they apply. I am not at liberty to reveal which side the House the M.P. sits. That is not germane to my story.

The county division where the occurrence took place has two leading characteristics. So far as political parties are concerned, they are very evenly divided; it is also a hotbed of poultry-breeders and fanciers. Thus the tendency is for poultry to unite and politics to disunite its people. Usually there is general harmony. When an election is in progress then the feathers fly. As every vote tells, the fervour and excitement are intense. It might be a conflict of gamecocks, so far as sound and fury are concerned. A candidate who can talk about fowls with some measure of sense has a great advantage. I have occasionally coached up these men, so that they were able to avoid egregious blunders. What was said has been highly appreciated, and often helped towards success at the polls.

One of the most ardent workers was Jan Hewitt. Many years before the time of which I am writing he had lived in another part of the country, where he was engaged in business, in which he had been very successful. Moreover, he was an equally successful breeder and exhibitor of poultry. About the time he retired from business something occurred respecting which more shall be said. Suffice it to state that he was debarred from exhibiting at shows held under Poultry Club Rules and his name erased from the membership roll of that body. That ended his career in poultry, except in a minor way. Since removal to his present abode he had devoted himself to politics and local public affairs, in the latter of which he had considerable ambitions, some realised, some apparently in prospect of being attained at an early date. Whilst not a man with any fixed principles, he was a good and ready speaker, and, having no employment to absorb his time, he was able to devote his attention to general affairs. Already he had attained the dignity of J.P. That, however, did him no good, as he had rather lost his head over it.

Jan had a very bitter tongue and was not

scrupulous in expression of his views. Strange to say, in the light of what occurred later, he delighted in finding out little things about his opponents. By twisting these about, without making any definite charge, he gave an impression that there was something behind of a serious, or, at any rate, of a doubtful character. Such half-lies were very difficult to combat and most exasperating, but they were none the less effective. They had often been the means of swaying many votes to his side. He was not liked by his own party. Many of the better sort secretly revolted against his methods. Politics, however, forms a dirty game. Actions are condoned which would be scorned in ordinary life. "All's fair at elections," if not a vocally expressed motto, is certainly adopted in practice. Jan was not a coward. Nothing suited him better than to attend an opponent's meeting and either create a scene or, by his interruptions and heckling—often very clever indeed—disconcert the speakers. He was undoubtedly a valuable asset to whatever party he supported. He had changed sides once before that time, presumably because of a new policy adopted which, he said, was against his convictions; probably because he thought they did not appreciate him enough. As a consequence, he hated the party he had left to the full.

One Member for the constituency had sat for many years, so much so that it was thought to be a safe seat. He was a very wealthy man, generous in the extreme, a poor speaker, and not much of a politician, one of those whose vote in the House of Commons could always be depended upon by the Whips. Some of these votes had given great offence to a considerable number of his constituents, as it was a time when party feeling ran high and divisions were sharp. He was of the side which Jan had more recently joined. The other party determined to win the seat, if possible. They invited a friend of mine, a man who had risen from the ranks by sheer force of ability, to become candidate. A convincing speaker, with a fascinating personality and deep-seated convictions, he had thrown himself into the contest with such earnestness and vigour that he had succeeded in his first election, to the surprise of every one of his opponents and many of his supporters.

The pill of defeat was a bitter one indeed to those who had for so long been accustomed to victory in a contest, or to a walk-over. As a result of the consternation which resulted, they lost their heads completely. They pursued the new Member with venom, even going so far as to make personal charges, which landed one or



two of them in the law courts. As a rule, however, the new Member treated all this with good-humoured contempt, simply biding his time. Many of his opponents ultimately regained their sanity, thinking that the lost election was merely an accident due to over-confidence. They determined that if possible it should not occur a second time.

Three years later another election took place. The old Member decided not to fight again, and a new candidate was secured, so that the battle was more equal. During this period my friend strongly increased his hold upon the constituency. As the day of election drew near those opposed to him realised that it would require all they could do to wrest the seat from him. That fact but added to their exasperation and virulence. On both sides feelings were bitter in the extreme. The gloves were off. Nothing that could be done was neglected. Much took place that all were more or less ashamed of when they had calmed down.

It was at this time that Jan Hewitt excelled himself. Without fear, even of personal violence, he attended the sitting Member's meetings, often accompanied by a strong band of supporters, who formed a sturdy knot of disturbers not easy to deal with. Not only so, but at each gathering he usually managed to say something which suggested more, leaving a nasty taste and dangerous impressions, more especially in the minds of non-partisans, whose votes usually determine an election. It was impossible to deny every insinuation or to meet vague statements which did not involve any definite charge.

Although not a keen politician myself, I had gone down to render service to my friend in a quiet way, for his own sake and that of his parents, whom I had known almost from my own boyhood. What I did was not seen by the public, but it was useful work, which was highly appreciated.

I had several times heard Jan Hewitt's name mentioned as a redoubtable and unscrupulous antagonist, one who was exerting more influence than the candidate he supported. It was not until about a fortnight before the election that I saw him. That was at a large village meeting which he was engaged in turning into a bear garden. It was evident that his object was to prevent my friend making his speech, possibly fearing its effect upon the voters present. His name up to that point had meant nothing to me. The moment I saw him, in spite of the interval of twenty years that had elapsed since the last time we met at the show which was the scene of his downfall as a fancier, I recognised him. Although the event had been forgotten more or less with Hewitt's disappearance, like a flash everything associated with it came back to my mind with the clearness of a photograph, or as if it had occurred but a few weeks before. When I listened to his almost brutal interruptions and thought of the insinua-

tions he had been making, the temptation was strong to expose him then and there. Fortunately I restrained myself, remembering that it would be wiser to bring proofs so that the case might be without question. He certainly had an exciting time on the last occasion in which he was able to display his powers.

That night my friend and I had a long consultation as to how action should be taken. That there need be no compunction in using our knowledge to silence a man whose own sense of honour was so low, who did not seem to know what fairness to an opponent meant, and who hesitated at nothing to achieve his purpose, we both agreed. How best to act was the point. One thing the sitting Member determined—namely, that however great the provocation, he would do nothing which brought him down to Jan Hewitt's level. Yet whatever was done must be effective. Finally we agreed upon the plan, as the sequel will show. I wired home that night for copies of the poultry papers in which the disqualification was recorded, for these had been preserved, and they turned up the next day.

An opportunity presented itself two evenings later, when a great meeting was to be held in the county town, near which Jan Hewitt lived. He was on his own dunghill, and turned up in full force with a horde of supporters, determined upon breaking up the gathering. He was moderately quiet during the speeches of the chairman and one or two others. As soon as my friend, Mr. L——, got upon his feet, Bedlam was let loose. What with the shouts of the disturbers and our infuriated supporters, it was pandemonium. Free fights were going on in several parts of the hall, and it looked as if the meeting must be broken up.

When the strife was at its height, as had been arranged beforehand, I quietly moved to a seat next to the candidate at the front of the platform, within full view of Jan, who was in the centre of the auditorium. There was a sudden lull, which has always been attributed to his recognition of me, and a consequent psychological influence, perhaps a premonition of what was to follow, upon his followers, who were strangely stilled.

"My friends," said the candidate, seizing the opportunity, "I have something to say to Mr Hewitt himself which it will be to his advantage to listen to.

"I ask him two questions—first, whether he is prepared to cease his disturbances at all my meetings; and, second, to come and see me at the Bear Hotel to-morrow morning at nine o'clock?" he continued in a tone of voice which compelled attention.

Jan hesitated to reply. It was evident he was considerably perturbed. All the fight seemed gone out of him. The audience was quieted by a sense of wonderment.

"I am waiting for an answer," said the speaker,



quietly yet firmly, after a short pause. "One I intend to have. Unless Mr. Hewitt agrees, and at once, something will be said that he will not care to have uttered in public."

There was a tense silence for a few moments, and then, to the amazement of his supporters and opponents, Jan gave his promise to both questions. The meeting was a triumphant success. Everyone agreed that it had a powerful effect upon the election, which, it may be mentioned, my friend won with an increased majority, and has continued to hold the seat ever since.

I was not present at the meeting next morning, but heard all about it afterwards. Jan Hewitt presented himself as he had promised. At first he attempted to treat the matter with his accustomed bluff, assuming that Mr. L——d was trying to bribe him to silence. That state of mind did not last long.

"I have asked you to come here, Mr. Hewitt," said the candidate, "mainly for your own sake. There is no need to beat about the bush or to mince matters. You have a right to your own views, to promote them in every way which is fair and honourable, to oppose me to the fullest extent of your power and influence, but you have no right to make vile insinuations about me which are incapable of proof, because there is not a particle of truth behind them, as you know, or to conspire continuously to break up my meetings. I am not going to say what I think of your actions, but tell you that this sort of conduct must stop forthwith."

"What if I refuse to do as you wish? I am not to be threatened, Mr. L——d," Jan replied, with simulated bravado.

"What I shall do is my business," was the response. "Perhaps from my point of view it will be better if you refuse. For many reasons I should prefer that. The evidence which I have about you in my own room will make a good subject for my next speech, and the papers will be glad to get hold of the story I shall have to tell about you. I have no desire to prolong this conversation, for I am very busy, but demand a definite promise from you in writing, unless you wish me to make public some facts I have gathered from your past history. I am treating you with more consideration than you deserve, and my patience is exhausted."

"I don't know what you mean. There is nothing I have to be ashamed of," said Jan, trying to appear calm, although with difficulty.

"Is there not?" queries Mr. L——d. "You had better think again before you speak. Let me tell you this much, that at the meeting to-night, if you refuse my conditions, my friend, Mr. Enos Malpas, is going to state what he knows about you, and I have certain papers which shall be placed before those present and sent to the news-

papers. I am treating you generously, and you know it."

Jan collapsed forthwith. He was ready to promise and to do anything, so as to escape an exposé which would damn him for ever, even going so far as to offer to support Mr. L——d for the future, which was contemptuously refused, the candidate telling him that he would rather lose the election than accept his help.

"What you do I care nothing, save that you stop disturbing my meetings and making vile statements about me. You are welcome, for all I care, to fight as hard as you like. But I will stand no nonsense, either now or at any future time," said the candidate.

"I promise you, sir," said Jan, humbly. "You may rely upon my keeping my word."

"You had better do so," was the suggestive response.

Jan's documentary apology and promise for the future were ample and complete. He at once went away, on the pretext that his health had broken down. There was much wonderment and general surprise, with surmises of all kinds, none of which came near the mark. He returned after the election was over, and in the after days left politics as severely alone as he had poultry twenty years previously.

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## DEATHS AMONG FOWLS BY CARBIDE FROM BICYCLES.

HERE and there throughout the North and North-Eastern counties farmers' wives and others interested in poultry have had the misfortune to find some of their fowls dead without knowing any apparent cause of the mortality. In several instances owners have lost representatives of their best laying strain, as well as many of those most suitable for table purposes.

Thanks to the skill of one of the instructresses of the College of Agriculture, the cause of this loss has been ascertained. As the result of post-mortem examinations on poultry, it was found that deaths were due to the poultry eating bits of unexhausted carbide thrown carelessly away by persons from the lamps of their bicycles. Carbide is a deadly poison, but it is not dangerous when thoroughly exhausted and rendered into a white powdery condition.

This should serve as a warning to those who use carbide for lighting purposes to exercise the greatest care when disposing of what is regarded as exhausted stuff. The sound advice is advocated of burning or burying the used-up carbide and not to scatter it recklessly on the ground where poultry will have an opportunity of picking it up.—*Aberdeen Daily Journal*.

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### A New Definition of Cruelty.

It is stated that a Missouri judge has imposed a fine on a man who gave beer and whisky to a chicken and made it intoxicated, on the ground of cruelty to animals. The bird was an unwilling drunkard.



## ECONOMY IN FEEDING.

### The Value of Malt and Hops for Feeding Poultry.

IT is only quite recently that the value of malt and hops for feeding poultry has been fully realised.

**MALT.**—This is the preparation of barley from which ale, beer and porter are brewed. For this purpose the barley is steeped in water for three or four days. It is then taken out and allowed to lie until it begins to sprout or germinate. As soon as this process has advanced sufficiently its further progress is prevented by drying it in a kiln heated by coal or coke. The grain has then to be crushed in a mill. Its saccharine and mucilaginous portions are extracted by boiling water. The liquor thus produced is called "wort," which, having undergone the process of fermentation and having been flavoured by the addition of hops, constitutes ale or beer. What remains after the brewing is called "grains," which is used for feeding horses, cows, and the like.

The average analysis of dried grains is : Water, 10.0 ; oil, 6.93 ; albuminoids, 19.50 ; carbo-hydrates, 42.31 ; food units, 108.

**DRIED GRAINS.**—Dried grains from the process of making extract of malt are of a much higher value than ordinary brewers' grains. Also grains from distilleries possess much higher feeding value than the grains from breweries, having over 10 per cent. of oil, 32 per cent. of albuminoids, with 146 food units, as compared with 108 in brewers' grains.

Extract of malt has been found very beneficial for people with delicate constitutions, when formed into emulsion with cod liver oil.

**MALT CULMS OR COOMBS.**—These are the sprouts that are brushed off the grain after it has sprouted and been dried in the kiln. They possess a high feeding value ; in fact, higher than malt itself. When used judiciously they are a very valuable addition to any meal, especially for fattening purposes. Average analysis : 1.7 oil ; 23.2 albuminoids ; 48.5 carbo-hydrates.

**HOPS.**—This useful plant is a native of Europe, and is grown in North America. The fruit is a kind of cone composed of membranous seeds, each of which envelops a single seed. The cones are the object for which it is so extensively cultivated, and their principal use is to communicate to beer its strength and give it its agreeably aromatic "bitter" taste.

Hop "wort" is obtained in the same manner as that of malt by infusion with hot liquor, as aqua pura is known in all breweries. The two liquors are blended and the fermentation is started by adding a certain proportion of yeast, or "barm," as it is sometimes called.

The seed of the hop is the part of the cone that contains the aromatic flavouring. The seed is also rich in oil, as shown by the following analysis. It will also be seen that it is very high in albuminoids, the flesh-formers, and compares very favourably with dried grains. These two by-products mixed together are an excellent addition to any cereal meal or vegetable food, like clover-meal or swedes.

Analysis of hop-meal : albuminoids, 26.69, oil, 8.41 ; carbo-hydrates, 33.29 ; food units, 121.

**YEAST.**—Yeast is the frothy substance that rises to

the top of the mash tun, caused by the fermentation of the "wort" during the process of brewing. This yeast has marvellous vitality or "working" properties. It is synonymous with leaven, of which a little put into a mixture of flour and water for bread-making will leaven the whole lump.

It is only during the last few years that the extraordinary feeding properties of yeast have been discovered. It used to be thrown away to a very large extent. Now a process of drying has been perfected ; but it is a very expensive process, and it has been said that it takes six tons of wet yeast to produce one ton of dried yeast meal.

The Germans have been buying all they could get from this country. This will now be available for poultry feeders. It is the most valuable food known besides being a food in itself—possessing over 150 feeding units. It assists the digestion of any other foods with which it may be incorporated.

### A FURTHER TRIBUTE TO ONIONS.

THE quotation given in the July RECORD as to the value of onions in chicken-raising receives further confirmation in *Eggs*. A communication is printed from Mons. L. Chappelet, a Swiss breeder, who says :

"It may interest you to know that I have found chopped raw onions of the greatest benefit to summer chicks. I knew of them for bronze turkey poults, but had not hitherto tried them for baby chicks. Now I consider them a first-rate preventive of, and antidote to, white diarrhoea, and from the experience of this season should not be afraid to undertake the raising of a very large percentage of summer chicks, from average stock.

"About the middle of May, after very trying weather for chicks, I had two broods of fifty baby chicks, and one brood of two months old, badly out of sorts and ill with diarrhoea.

"After treating them for their symptoms principally with quinine, it was up to me to discover something that they could and would eat and digest. It was then that I tried feeding them exclusively on whole-meal barley, liberally mixed with raw chopped onions. The chicks, one and all, ate it with delight, picking out the onions as though they were plums. At once the diarrhoea left them and they almost all recovered, the older ones feathering in three or four days' time. Since then, working with the same pens, incubators and brooders, I have not had a single case of diarrhoea, and hardly one sick chicken, through the impossible weather we have been enduring.

"From the experience of this season I should not be afraid to undertake the rearing of almost as large a percentage of July or August chicks as in April or May, provided I could give them plenty of onions.

"All my little chicks since May have had one feed per day of barley meal and chopped onions, right away from first feed. They are lively and bright, mortality almost nil. My own opinion is that onions (beloved of the Egyptians) are grand disinfectants of the alimentary track and preventives of liver trouble. Lately I read of their being used against tuberculosis, as also garlic. This latter is given to fowls in the South of France, but I have never tried it."



## DARI AS POULTRY FOOD.

By EDWARD BROWN, F.L.S.

WITH the exception of small quantities found in poultry mixtures and for chick feeding, the seed known in this country as dari, is used to a very small extent. Under present circumstances, however, when the cost of feeding stuffs has advanced to a serious degree, the necessity for extending the range of supplies is apparent. The poultry industry has been largely built upon cheap food. It may be true that the values of eggs have advanced to an equal extent as those of some classes of grain—that is, excepting wheat, which is now prohibitive in price for fowls. What we have to seek for are other forms of food at less cost. One reason for the limited use of dari is the comparatively small quantities imported, ranging within recent years from 10,500 to 22,000 tons per

in carbohydrates or fats. That can easily be accomplished.

I am informed by the representatives of the Sudan Government in London (5, Northumberland Avenue, W.C.), that dari from that country can be sold in London at 36s. per quarter of 480lb. The present price of maize is 39s. per quarter for the same weight. Were the consumption increased and shipments made in larger bulk doubtless the price for dari would be less. There is sufficient evidence to show that, equally as grain and meal, dari warrants freer use. From its colour I think that for raising chickens and fattening poultry its value is much greater than hitherto supposed.

Unfortunately we have no data as a result of experiments in feeding poultry upon dari. Those carried out at the Armstrong College, Newcastle-on-Tyne, and the Wye College, Kent, with milch cows, gave almost identical results from the use of dari and maize.



THE HARPER ADAMS COLLEGE AND GARDENS FROM THE WEST.  
Some of the Poultry-Breeding Pens are Seen in the Foreground.

annum. These have come chiefly from Asiatic Turkey, British India, and Egypt. A new source, however, presents itself—namely, from the Sudan, where it forms the staple food of the people. That country is capable of producing greatly increased quantities were outlets available.

The question is entirely that of cost in relation to feeding values. An analysis of Sudan dari made at the Imperial Institute, published in the Bulletin of that institution, may be compared with one of maize:

	Dari per cent.	Maize per cent.
Water .....	8.45	14.4
Proteins .....	13.06	10.0
Fat .....	3.30	6.5
Carbohydrates ...	72.45	62.1
Fibre .....	1.03	5.5
Ash .....	1.71	1.5
Nutrient Ratio	1:6.1	1:8.2

It is evident, therefore, that dari is the better balanced food as seen from the nutrient ratios, although both are wider than desirable for poultry, and require to be mixed with such foods as are not so high

Poultry-keepers, corn merchants, and dealers are, therefore, advised to pay greater attention to this seed as food for poultry, with a view to cheapening the cost of production. One important advantage is that it does not coat the muscles and organs with yellow fat.

#### The Late Mr. E. C. Stretch.

Another well-known figure in the poultry world has passed away by the death of Mr. E. C. Stretch, of Ormskirk, who, in addition to being a prominent exhibitor, for many years held the position of auctioneer at leading shows. His geniality and tact gave him an important place, which will be filled with great difficulty.

#### Dog v. Fowls.

Counter-actions were tried recently in the Wymondham County Court, in which a farmer claimed damages for fowls killed by a dog, which he had shot, and for which the dog-owner sought compensation, as it had been trapped within thirty yards of the highway. In the end £3 12s. 6d. had to be paid for the fowls and £2 10s. for the dog, so the honours were almost even. But the dog was the culprit.



# POULTRY INSTRUCTION AND ORGANISATION.

## THE POULTRY INDUSTRY IN 1914.

By EDWARD BROWN, F.L.S.

AT no previous period of the world's history have changes taken place such as those which marked the year 1914. From time to time all who have engaged in endeavours to develop egg and poultry production in this and other countries have listened to ominous reverberations which threatened to hinder if not stop their work. Many of us hoped and believed that these were but passing storms, and that the catastrophe which so many thought inevitable would be averted, as had been the case so often before. Unfortunately, such has not proved to be true, and vast areas in Europe are now devastated by the greatest war ever waged.

Early in August, ere the minds of men were able to discern the effect of war conditions, and especially the dangers of a rapid and serious rise in the price of grain and feeding stuffs, which, happily, was averted to some extent owing to the prompt action of our Fleet, there was a disposition on the part of our poultry-keepers to kill off their birds, as it was by no means improbable that the cost of production would be greater than the returns. Fortunately, the period of partial panic was very brief, and saner ideas asserted themselves. It was early evident, by the stoppage of imports, that we should be compelled to a greater degree than ever to depend upon our own resources in food supplies, more especially eggs and poultry which are received almost entirely from Continental countries now involved in or directly affected by war. Prices of eggs rapidly rose, though not to the extent anticipated owing to the consequent reduction in consumption, more especially at the time of year when these are highest in price. The prompt action of the Board of Agriculture and Fisheries in various ways, and the influence of the Press generally, have prevented that depletion of the poultry stock which was at one time feared, and would have been disastrous. One result to be aimed for is that there should follow a considerable increase in production, for it is reasonable to assume that we shall not see for many years, if ever, foreign supplies attain the magnitude of 1913, an explanation of which is that so many areas on the Continent of Europe have been swept bare of poultry, and that for a time these countries will be compelled to import eggs and poultry if they want them at all. It is satisfactory to note that in all sections of the country efforts are being put forward by central and local authorities for development of this branch of live stock.

On the other hand, in contradistinction to advance in the price of eggs, there has been a great decline in that of poultry, save at Christmas, when medium and small sized turkeys were sold at rates very little below those of previous years. This fall in values was much more evident in high-class birds. The cause is not far to seek. Demand for more expensive chickens, which form a luxury, is dependent, to a greater extent than had been realised, upon the wealthier sections of the community, upon hotels and high-class restaurants, and public functions. Cessation of festivities, whether private or public, has stemmed the outlets. That con-

dition of affairs will probably continue so long as the war lasts, as must lower prices. I found the same to be true in Paris, which city I visited in November.

The branch of the poultry industry which has been hardest hit is that of breeding establishments, more especially those which sell high-class birds. For a time it appeared as if this side, which has grown very rapidly within recent years, and is an essential factor, would meet with disaster all round. There has, however, been a partial recovery, more especially in the sale of utility stock, the demand for which should increase as more poultry are kept by farmers and others. This is not a time to expect that many buyers will pay high prices for exhibition stock, more especially as so many shows have been suspended, and, also, the export trade has been greatly reduced. For recovery in that direction we must wait, as in the case of expensive table poultry, termination of the present conflict.

There are many other aspects of the industry which might be discussed. These may, however, be left to a more favourable opportunity, especially as prices and imports dealt with in the succeeding paragraphs are specially important and suggestive.

The special circumstances of the year 1914, owing to the outbreak of war, make impossible comparisons between that and previous years. What needs to be done is to divide 1914 into two periods—first, January 1 to July 31, and, second, August 1 to December 31—that is, war and ante-war months, which is done in the respective tables given below. At the same time may be put on record the total values of imports for the complete year, as compared with 1912 and 1913:

	1912.	1913.	1914.
	£	£	£
Eggs .....	8,394,524	9,590,602	8,653,004
Poultry .....	845,565	909,894	755,263
Totals ....	£9,240,089	10,500,496	9,408,267

The reduction of imports is not so great as might have been anticipated, mainly because the war period is that of lesser supply in eggs. So far as quantities are concerned, the decline is greater than shown by the money figures, as values have advanced to a considerable extent. It is evident that but for the war the volume of imports in 1914 would have exceeded those of the previous year, which was the highest on record. The total quantity of eggs imported in 1914 was 17,905,285 great hundreds, as against 21,579,950 in 1913, a reduction of more than 17 per cent.

In the following tables are given the quantities of imports for the two periods as compared with the previous year:

### QUANTITIES OF EGGS IMPORTED.

	January 1st to July 31st.		Inc. (+) or dec. (-).
From	1913. gt. hds.	1914. gt. hds.	
Russia .....	5,290,453	4,993,168	-298,285
Denmark .....	2,267,474	2,097,977	-169,497
Germany .....	280,133	405,390	+125,257
Netherlands ....	683,519	873,807	+190,288
France .....	505,547	486,125	-19,422
Italy .....	580,536	800,910	+220,374
Austria-Hungary..	655,820	908,546	+252,726
Other countries ..	1,394,922	1,457,400	+62,478
Totals ....	11,658,404	12,023,328	+364,919

The total increase up to July 31 was 3.13 per cent., the most notable of which was from South European countries.



## QUANTITIES OF EGGS IMPORTED.

From	1913.	1914.	Inc. (+) or dec. (-).
	gt. hds.	gt. hds.	
Russia .....	6,162,824	1,877,659	-4,285,165
Denmark .....	1,977,469	2,217,923	+ 220,454
Germany .....	233,607	984	- 232,623
Netherlands .....	293,831	308,479	+ 14,648
France .....	196,734	146,822	- 49,912
Italy .....	265,253	73,283	- 191,970
Austria-Hungary ..	227,831	3,128	- 224,703
Other countries ..	543,997	1,243,684	+ 699,687
Totals ....	9,921,546	5,881,962	-4,039,584

In this period the total reduction is 40.71 per cent. Evidently those included in Other Countries have availed themselves of the opportunity afforded by high prices, or the decline would have been much greater. Whence these have come is not stated.

Average values are what count, and below are given those for several complete years:

## AVERAGE VALUES OF ALL IMPORTED EGGS.

	Per gt. hds.		Per gt. hds.
	s. d.		s. d.
1898 .....	5 10	1908 .....	7 10½
1900 .....	6 5½	1910 .....	7 11½
1902 .....	6 7½	1912 .....	8 9½
1904 .....	6 9	1913 .....	8 10½
1906 .....	7 6½	1914 .....	9 8

The figures for the respective countries and groups are:

## AVERAGE DECLARED VALUES OF IMPORTED EGGS.

From	1912.	1913.	1914.
	Per gt. hd.	Per gt. hd.	Per gt. hd.
Russia .....	8 2	8 3½	8 5½
Denmark .....	10 9½	10 9½	11 9½
Germany .....	8 4¾	8 4¾	8 8
Netherlands .....	9 5½	10 0½	10 1½
France .....	9 2½	9 3½	10 4½
Italy .....	9 10	9 11½	9 10½
Austria-Hungary ..	8 5½	8 6	8 3
Other countries .....	7 7½	7 5	9 5½

Here, again, discrimination between the two periods is necessary, as made below:

From	January—July.		August—December.	
	1913. Per gt. hd.	1914. Per gt. hd.	1913. Per gt. hd.	1914. Per gt. hd.
Russia .....	7 5½	7 7½	9 0	10 9½
Denmark .....	9 11½	10 3	11 8	13 3
Germany .....	8 1½	8 8½	8 8½	8 0½
Netherlands .....	9 7½	9 6½	11 0½	11 8½
France .....	9 0½	9 11½	9 11½	11 8½
Italy .....	9 4½	9 7	11 1½	13 0½
Austria-Hungary ..	8 3½	8 3	9 0½	8 6
Other countries ..	7 0½	7 3½	8 4½	11 10½
	8 2½	8 5½	9 7½	12 0½

The striking facts of the above figures are that in the ante-war period there was a rise of 3d. per great hundred, and that in the war months the average advance has been 2s. 5½d. per 120, or 25.75 per cent. The position has been so abnormal that it is impossible to suggest deductions at present.

With regard to poultry imports the same considerations apply, for the year must be divided as in the case of eggs. During the first seven months there was a considerable increase in quantities and a reduction in values as compared with the same period of 1913; and in the five war months a great decrease in volume and an increase in values, the figures being:

	January—July.		August—December.	
	Quantities. cwt.	Average value per cwt.	Quantities. cwt.	Average value per cwt.
1913 .....	169,919	66.0	108,546	78.0
1914 .....	195,791	61.7	27,808	88.3
	+25,872	-4.3	-80,738	+10.3

The total figures for the entire years as to quantities are as under, as compared with 1913:

From	1913. cwt.	1914. cwt.
Russia .....	119,944	114,921
France .....	31,175	15,600
Austria-Hungary .....	26,674	5,825
United States of America .....	54,242	38,221
Other countries .....	46,430	49,032
Totals .....	278,465	223,599

Had it not been for the war, probably the imports of poultry, as of eggs, would have been greater in 1914 than any previous year. In this connection, however, there is a striking rise in the re-exports of dead poultry, which rose in value from £45,344 in 1913 to £93,596 in 1914.

## SELECTIONS AND REVIEWS.

## Chinese Methods.

THAT so far as intensive production is concerned we have much to learn from China has been previously pointed out. This is further strengthened by an article in *Farm Poultry*, written by Mr. W. A. Lajoy, from which we quote as under:

One great credit is due to the Chinese and that is, they don't deprive their fowls of plenty of room, for the law says they must be free to go where they will, regardless of the amount of damage they may do to a neighbour's garden. A garden remains in the same place and if you don't wish for fowls to scratch up your seed or eat the vegetables, you must fence in the garden, but not the fowls. The same law exists for cattle and horses. A man may turn his horse or cow out to feed by the roadside and it may feed from any lot that isn't fenced strong enough to keep it out or where there is no watchman to keep stock out. Legs were given to horses, cattle, and fowl by God, therefore, they may go where they will, but not so with land, for it remains in the same place; fence it in.

The main food used for laying hens is bean cake, in which are beans pressed together after the oil has been squeezed out. The oil is used for lighting and cooking, while the cake, which is rich in protein, is fed to horses, cattle, and poultry. However, this isn't so in Korea, for in Korea fowls are never fed. They must make money for the owner, therefore they must get their own living, which is rather scarce from November 20 to March 15, so you will not wonder when I say there are but few eggs in the country during the winter months.

## Clean, Sweet Yards.

Soil taint is the *bête noir* of the smaller poultryman, and it is impossible to repeat too often the need for attention in this direction. Professor H. R. Lewis, of the New Jersey Agricultural Experiment Station, says on this subject:

Tainted yards carrying infection and filth aid greatly in increasing the possibility of disease being held and spread from one flock to another or from individuals in the same flock. The best and safest practice is to provide as large yards as possible, for the larger the yard the less danger of an excessive amount of filth accumulating. Where it is neces-



sary to have small runs, the frequent cultivation of same will aid greatly in reducing the possibility of the excessive accumulation of infection.

For the poultryman who is compelled by lack of space or other causes to closely confine his birds during the summer it will be found very profitable to divide the run or yard given them into two, and to rotate green crops, allowing the birds first to feed in one yard and then in the other.

By planting seasonable crops like peas and oats, peas and barley, buckwheat, millet, cow peas, and late in the summer such crops as vetch, crimson clover, and wheat or rye, the birds will have a continuous supply of green food during the summer and green crops to feed on early in the spring.

If these crops are allowed to make about four inches to six inches growth before the birds are turned in on them, they will not become woody nor

that the system is growing in favour. Whether exercise of the digestive organs explains success remains to be proved. "Right About," in the *Feathered World*, makes an interesting suggestion as follows:

The question of the digestibility of the dry mash versus wet mash is a moot point, and a chemist friend propounds the idea, and supports it by scientific data, that the dry formula is more easily digested by the fowl than when moistened. All foods used by animals, after being consumed, are brought into contact with the acids and juices of the stomach and digestive canal, by which the various forms of meals and grains are reduced to simpler bodies and into such a form that that which is needed and can be made use of may be absorbed. To secure the best results digestion should be quick and complete, and the food should be served in such a form that it will speedily absorb the



GRADING AND PACKING EGGS AT A SWEDISH DEPOT.

will the birds clean them up in a day or so, but they will supply the birds with green food for about four weeks, or while another crop is growing. This method not only supplies the succulent feed in the cheapest and best form, but also purifies the runs and keeps them in a clean, healthy condition, which is an important item when a lot of birds are given restricted range.

The poultry-yard should not only be kept sweet and clean, but it should be supplied with an abundance of natural shade, growing trees, &c. They may be made to yield a double income; but while these are young the use of corn or sunflowers have proved especially desirable for this purpose.

#### Digestibility of Dry Mash.

Much has been written about dry mash feeding. That fowls thrive on it is unquestionable, so much so

various digestive juices in its passage through the alimentary canal. If food has been effectively soaked by water, it can absorb no more, and it is reasonable to assume that the wet mash would pass through the system imperfectly digested, since the various digestive juices would be unable to approach their purpose on account of the presence of water. The result is a great waste, besides a big strain upon the physical machine. Those of us humans who have lost our masticators, and suffering martyrdom with indigestion brought about by an artificial form of diet, go to our physician, whose first words of advice are, "Don't take liquid with your meals." Fowls suffer from indigestion just as much as any other animal when nature's laws have been disregarded beyond the limits. Dame Nature provided a most wonderful machine, which when properly tended and correctly served will perform its office as no other machine can.



### Can I Get a Living from Poultry-Farming?

Such question is asked hourly and by thousands of people, either subconsciously or vocally, or by pen. It is well, therefore, to record the opinions of a large poultry-farmer such as Mr. T. W. Toovey, who, writing in the *Poultry World*, thus sums up the case:

Almost any intelligent person fond of the work can make poultry-keeping pay, but poultry-farming is a different matter; it is when the question of rent, rates, labour, and incidentals all have to be paid for, with the lower rate of production inseparable with large numbers, that the pinch comes.

At any rate no one should attempt to obtain a living from poultry-farming until he or she has first served a good apprenticeship as a pupil, and it would be still better then to serve as an employé for a time, to gain further experience, and to prove to themselves that the work is congenial and that they are physically fit for the continuous work. I think we may accept it as true that the small poultry-keeper with the farmer can rely on a profit with proper management, and that the bulk of our poultry supplies will come from them, as in the past. We may also conclude that poultry should be a very valuable adjunct to the smallholder and market gardener; for all these there is no doubt about its profitability, with intelligence and knowledge applied. The small poultry-farmer doing his own work, with the help of wife and children, or, it may be, a boy, should also meet with success, but I would rather not be responsible for recommending the large poultry-farm with all its accessories of labour, rent, marketing, and clerical work as a medium for producing eggs and poultry for table only.

The large poultry-farmer has a useful place in the economy of the poultry world. It is his place to supply carefully bred and selected stock for those whose work lies entirely in supplying food. He also will have a surplus which goes for the same purpose. Then again there is the specialist, fewer in number, who by careful trap-nesting enables the large farmer, by acquiring his pedigree laying stock, principally possibly through the males, to improve prolificacy all round.

### Cold Feet.

Conditions have much to do with comfort, and comfort with productiveness. Any influence which tends to exhaustion or elimination of body forces must tend to a lessened egg supply, more especially dampness. Mr. A. T. Johnson, writing in the *Agricultural Economist*, says:

The great Mr. Spurgeon once said that it was impossible to convert a man with cold feet, nor can you persuade hens to lay when they have no other shelter than that provided by a draughty hedgerow or muddy farmyard. You must afford them a genial retreat in which the diversion and exercise of scratching can be enjoyed with warm, dry feet. The lack of these things is at the very root of that failure to produce winter eggs which is the complaint of nine-tenths of our poultry-keepers to-day. Though experts have been hammering away at the subject for over two decades, the progress made—save by specialists—has been lamentably slow. The same old smelly run, the same old, dirty, vermin-ridden cart-shed, are still the rule

rather than the exception with the cottagers' and farmers' fowls. The fact that hens have been known to lay when subjected to such melancholy conditions ought in itself to be sufficient to suggest the great possibilities which await the poultry-keeper who substitutes saner methods for the negligence which prevails.

There is now a very wide choice of suitable winter-laying houses. Many of these are beyond the aspirations (as well as the pockets) of the cottager or small farmer. Indeed, it is doubtful whether it would pay anyone, other than the specialist, to go in for some of the elaborate contrivances now on the market. But there need be no cause for despair. A laying-house, provided it possesses a few simple requisites, is within the reach of everyone. And those requisites are a dry floor, ventilation without draught, ample light, and a warm aspect. Most important of all these is, as I have suggested, the floor. This is best made of wood, though concrete will do. It must be large enough to give sufficient room for scratching exercise when the birds are driven indoors by bad weather (two square feet to each fowl is about right), and it must be littered not only amply but with suitable material. If the shed combines the dual purpose of roosting-house and scratching shelter a wide "dropping board," sprinkled with dry earth or fine peat moss, placed below the perch, will economise the litter and go far towards maintaining sanitation and saving the labour of constantly having to clean the whole floor.

### Economical Poultry Feeding.

In these days we have all to economise, and poultrymen equally with others. It is necessary to burn facts into people's minds, and to show what may be done. A writer in the *Daily Citizen* says:

So much depends upon feeding that the subject must not be dismissed with a casual reference to scraps and refuse; these must be supplemented by purchased feeding-stuffs if eggs are to result. I say "eggs," because, although table chicken production may be contemplated by some small poultry-keepers, it is egg-production that offers the line of least resistance to the great majority.

Where the birds are very closely confined in a run of limited extent the food bill is reduced in proportion to the quantity and quality of the kitchen refuse and the availability of garden stuff that cannot be utilised more profitably in the house. But where there is a run over a paddock or field or a grass or arable range of any extent, there is the further possibility of curtailment of cost consequent upon the foraging opportunities of the situation. It all depends upon the size of the available area of land, its character and other possible uses—but in any case there must be some purchase of feeding-stuffs. The necessity is, however, small by comparison with the requirements of those who assume that large flocks make large profits.

Increased demands in other directions have combined with other influencing factors to the partial or entire elimination of some of the usual feeding stuffs from the poultry dietary. Wheat and some of the commonly used millers' offals must be used very sparingly, as also must some of the other grain food and its products, but if a careful selection is made—according to the circumstances and opportunities of different districts—it is possible to avoid any excessive



increase in the cost of feeding relative to the enhanced value of the eggs returned. The proportion of vegetable food may be judiciously increased, and steamed clover chaff may very well be used much more extensively than usual. The house scraps will generally supply a good proportion of animal food, but if skim milk is readily available it will remedy deficiencies in this respect.

#### A Call to Wales.

Commenting upon a meeting held between the Special Commissioner of the Board of Agriculture and the Glamorgan Agricultural Committee, the *South Wales Daily News*, in a leading article, says :

Wales is spending a million and a half sterling every year on foreign supplies, the greater part of which could be supplied by home producers if only the Welsh farmers, smallholders, and allotment holders would take the trouble necessary to capture the trade which is at their doors. There is much less reason why Wales should be dependent on imported eggs and poultry than England, because the farms of the Principality are nearly all of reasonable size, and not too unwieldy to admit of the highest cultivation. It has been suggested that Welsh farmers can make all the profits they desire out of their crops and stocks, that they are prosperous enough under present conditions, and therefore loth to trouble themselves about such trivialities as poultry-keeping. But no body of men can afford to ignore the possibilities of a trade worth a million and a half sterling per annum, and even if the farmers do not make an effort to realise this asset the smallholders and allotment holders should not neglect it. Alderman T. W. David contributed the useful suggestion that Glamorgan poultry-keepers should organise themselves into a county association, as the bee-keepers have done, and divide the area into districts with an expert instructor allotted to each. Much might be done by the adoption of this plan, which has been the means of extending apiculture and increasing local profits. For a small annual subscription the 10,000 people in Glamorgan who are dependent on agriculture for a livelihood might secure the regular services of poultry-rearing instructors, and in this way a considerable development might be effected.

#### A Word to Lincolnshire.

A leading firm of egg merchants has been writing to the *Lincolnshire Echo* pointing out how small is the supply of eggs from that great county, and these remarks are applicable in many other parts of the country. It is well to bring such facts home :

As the capital expenditure is not very heavy, and the work is easily possible, we may conclude that there is a failure to grasp the fact that there is a great market waiting to be supplied. Lincolnshire is a large county, but the production of eggs is woefully small. Sometimes when we see market quotations in your columns we think of the size of the market, and the quantities obtainable. Spilsby egg market consists of a couple of boards on trestles. Horncastle, Market Rasen, and Bourne are also very small. At Brigg there are really very small supplies at any time, and, as in all the other markets of the county, a tendency to sell to any outsider for a temporary advantage. At Louth, Boston, Spalding, Gainsborough,

Grantham, Brigg, and Sleaford there are small markets, but no considerable quantities. At Lincoln there are more offered, but nothing like as many as there ought to be. It is doubtful whether the equivalent of twenty long cases, that is twenty twelve hundreds of 120 could be supplied in Lincoln in any one week, yet twenty case lots are common orders in the trade, and from Ireland an exchange of telegrams results in ample supplies being bought.

The plain fact is that egg-production is neglected in Lincolnshire. There seems to be a tendency to obtain fancy prices for a few eggs brought in a basket rather than to produce quantities on a commercial basis, and make a good living out of it. Where can we obtain supplies on a commercial basis in the whole of Lincolnshire? There are not enough produced for local needs, and that is why we offered our resources to the Military Hospital in Lincoln, and are sending them excellent new-laid eggs from here, as we are also sending to the base hospitals in France.

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- THE FIELD. London : Bream's Buildings, W.C.  
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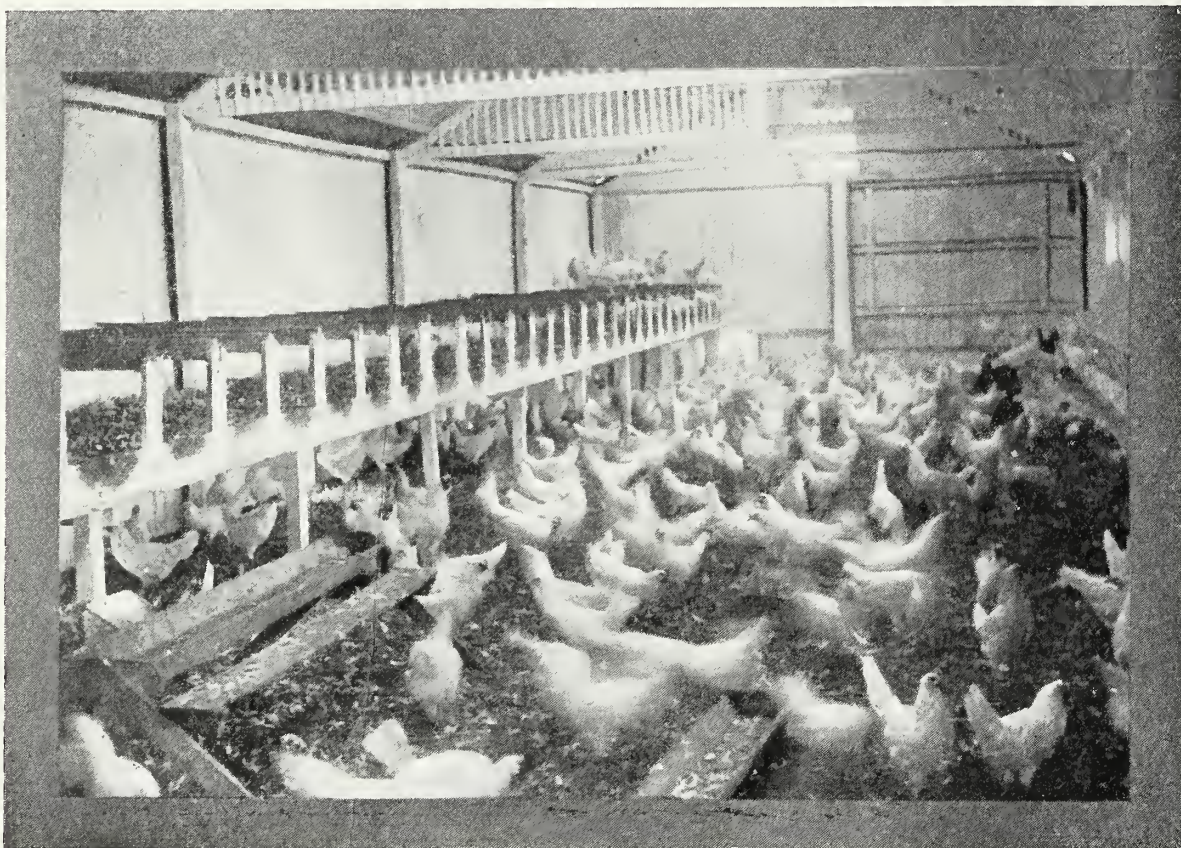
## LIBERTY FOR BREEDING STOCK.

FRED W. PARTON, the University, Leeds.

AT the present time a great deal is written about the intensive and semi-intensive methods of poultry-keeping, and there are many and various arguments advanced in favour of both systems by their respective advocates. There is a great deal to be said in favour of the keeping of fowls under semi-intensive conditions, so far as the actual egg-yield is concerned, but when it comes to breeding from those whose space has been restricted during the autumn, winter, and spring, we must have actual proof to convince us that the progeny would have the vigour to perpetuate, in due course, the stamina that is indispensable in utility stock. The results perhaps would not be very apparent in one year, but it is the

may be rectified to a very large extent by allowing them a free range. No doubt there are many advantages to breeding stock which are allowed liberty. This does not only apply to the actual time when fertile eggs are required, but absolute freedom before mating is of inestimable value in conserving their force. It is not, of course, absolutely imperative that fowls should be allowed freedom, since thousands are annually reared under far from ideal conditions, and are apparently satisfactory. But, as previously stated, it is a continuation of the practice that is to be discouraged. The ordinary poultry-keeper seldom looks beyond the present season's work, but it is necessary to look ahead, if the future stamina is to be maintained.

There are several important advantages in giving fowls their freedom. In the first place there can be no doubt that poultry with unlimited space over which



THE INTERIOR OF A LARGE INTENSIVE POULTRY-HOUSE.

continuation of the system through several generations that will enhance the fowls' natural tendency to degeneracy.

It may perhaps be imagined that by the middle of March the breeding season is too far advanced to make any drastic change. There is, however, a long time yet to elapse before the hatching season of 1915 draws to a close; as a matter of fact some of the best winter layers are produced during the latter half of March, and during the early part of April. Breeding stock, therefore, that have been closely penned up to the present time will be all the better, when circumstances permit, for being allowed freedom.

It is frequently noticed that in the month of March the male bird becomes exhausted, due to the strenuous work of the breeding-pen, which becomes more acute as the season advances. This is much more pronounced with birds kept in restricted areas, and it

to roam are usually in a better state of health than those birds which are less fortunately placed. However, I hope that none of my readers who are compelled to keep their birds in confinement will form the idea from what I have stated that fowls kept in confinement must be unhealthy. If, however, the question is an open one, and it is in the owner's power to give freedom if he so inclines, then by all means let the birds have the privilege of freedom; since the natural conclusion is that both sexes alike that have liberty are more likely to breed hardy and vigorous chickens than are those kept under cramped conditions, where full exercise cannot be given for the development of the faculties, so necessary for the propagation of health and sound constitution in their progeny. It is when any disease or other adverse influence is to be fought against that the benefits of freedom are so apparent, and the way in which fowls



can resist disease is a convincing proof in favour of liberty. Chickens bred from stock that have been reared at liberty, with plenty of change and exercise, can also better withstand the severity of the weather than can the progeny of fowls reared under less favourable conditions. When the system of scattering the breeding fowls about the farm is adopted, that is, having a few here, there, and everywhere, and each house, containing ten or twelve fowls, can be located sufficiently wide apart to prevent mixing with other breeds, then, of course, nothing more is required, if, and, the "if" is of the utmost importance, plenty of shelter is available. If the shelter is natural, that is a belt of woodland, shrubs, or other form of protection, well and good, but if the situation does not possess these natural advantages, then artificial shelter must be provided.

It is frequently the custom to make a selection of the pullets intended for breeding purposes, and put them in a run until as many eggs as are required for hatching have been secured. Up to the time of being so placed it is an excellent plan to allow them liberty before the tedium of three or four months of confinement. I am speaking generally, because there are undoubtedly seasons, the present for instance, when the weather is exceptionally bad, and there are many situations where shelter is not available when the fowls are scattered about. Under these conditions they should be brought nearer to the farm buildings for protection, otherwise eggs will not only be exceptionally scarce, but a large percentage of them will be infertile.

On all sides the evil of overfeeding is emphasised, and the evil cannot be exaggerated, since there is no doubt that the egg-laying organs are hampered owing to the accumulation of internal fat. It is quite common to see hens in their second year so enormously fat that they can scarcely reach their perch, and when they are killed the inside walls of the stomach almost meet, completely embedding the egg-laying machinery with an unhealthy mass of fat. Yet many hens found in this fat condition have never tasted maize. Of course, it is constitutional for certain breeds to lay on fat, and nothing short of semi-starvation will keep them lean. If, however, anything will keep the fat in check it is liberty. Liberty will go far in this direction, for it, together with exercise, will utilise and turn to more profit the food consumed than by storing up quite unnecessary fat. It is interesting to watch fowls in a small run, and to observe the same birds when unexpectedly liberated. Under the former condition they cluster in some corner of the run, with shoulders huddled up, having a melancholy, sleepy appearance. They have probably been too liberally fed, so that, even if it were possible, they have no desire to forage and scratch, in hopes of securing some tasty morsel from the soil. Watch the same birds when at liberty, they scatter about and are never idle, scratching and picking particles from the earth from the first thing in the morning until roosting time. The exercise continued throughout the entire day does more to keep down fat and maintain a healthy condition than anything else. The saving of the corn bill, always an important item, but never more so than at the present time, when food of every description is so excessively dear, is a matter that must not be lost sight of.

## POULTRY COOKERY.

### THE ART OF MAKING A RAGOÛT.

THERE are few dishes I know of, if any, that are more economical and, at the same time, more highly appreciated and appetising than a well-made, pleasantly seasoned ragoût. At one time the term only meant a very highly flavoured, thick sauce made with mushrooms, truffles, sweetbreads, quenelles, &c., which was used as a garnish for dishes of a very high-class, extravagant kind; but nowadays a ragoût simply means a very skilfully prepared dish of either fish, flesh, fowl, or vegetables, accompanied by a thick, richly flavoured sauce or gravy, without which the dish would be, comparatively speaking, a failure. The following are a few recipes suitable for the present season, and later on we hope to publish others of a lighter, more delicate nature.

#### RAGOÛT OF DUCK.

Roast the bird in the usual way until nearly done enough; then, when cold, cut it up neatly into joints and slices, and cover these over in a cool place until required. Chop two or three medium-sized onions rather fine and fry them in hot fat until quite soft and yellow; then dredge in a little flour, and stir with a small wooden spoon until the onions are richly browned, but not at all burnt. Now add about half a pint of good stock, a little salt and pepper if required, a small quantity of tarragon vinegar—about a teaspoonful—and a glass of white wine, and when the liquid has reached boiling point add the duck, and let all simmer as gently as possible until the meat is sufficiently cooked. Arrange a border of properly prepared rice or smoothly mashed and pleasantly seasoned potatoes round the edge of a hot dish; pile up the ragoût in the centre, and serve at once garnished round the base with a ring of hot, crisply fried parsley.

#### RAGOÛT OF FOWL.

Roast a couple of fowls for about twenty minutes, then cut them up neatly, and put all the odd trimmings and inferior parts into a stewpan with a large onion cut in quarters and a bunch of mixed herbs; cover these with stock, or water, and boil gently until all the good has been extracted, then strain carefully, and put aside until required. Put two ounces of fresh butter into a stewpan, and as it melts stir in two ounces of fine flour; then, when thoroughly blended, add sufficient stock to bring to a rich, creamy consistency. Stir until the sauce boils; then add the fowls, the strained juice of a small fresh lemon, and a small teaspoonful of fine white sugar, and simmer slowly until the meat is done enough; then dish up in a pile on a hot dish and surround with a firm, close border of either potato croquettes, sprigs of cauliflower, Brussels sprouts, creamed cabbage or crisply-fried croûtons, &c., and serve very hot.

#### A RAGOÛT IN SCALLOP SHELLS.

This is a most convenient way of using up the remains of any kind of either poultry or game. Free the meat carefully from every particle of skin, bone, gristle, &c., cut it up either into small dice or Julienne shreds, whichever is preferred, then season pleasantly with salt, pepper, fresh lemon juice, and a light sprinkling of mixed herb powder, and cover



over in a cool place. Next prepare a thick rich sauce with some really good gravy, a glass of white wine, a seasoning of cayenne, grated lemon rind and nutmeg, and sufficient roux to bring to a nice creamy consistency; then when boiling point has just been reached draw the saucepan on one side, add the lightly beaten yolks of three fresh eggs and the prepared meat, and stir for a few minutes, taking care that boiling point is carefully avoided. When thoroughly hot turn the preparation into well-buttered scallop shells, cover the tops with fine brown raspings, and return the shells to the oven for a short time; then, when quite bubbling hot, arrange them neatly on a hot dish covered with a neatly folded napkin, garnish freely with hot, crisply fried parsley, and serve as quickly as possible, accompanied by finger pieces of crisp dry toast.

#### RAGOÛT OF HARE.

When the hare has been well hung and properly prepared, divide it into small neat joints, or half-joints, and put these into a deep dish, pour over sufficient vinegar to cover them, add an onion very thinly sliced, half a dozen peppercorns, and a sprinkling of mixed herb powder, and cover over in a cool place for twenty-four hours. To prepare the gravy, which is such an important factor, proceed as follows: Put two ounces of fresh butter into a stewpan with an equal weight of fine flour and three medium-sized onions cut in very thin slices, and stir briskly with a wooden spoon over a moderate fire until the onions are brightly browned; add gradually a quart of water, a bunch of herbs, a thinly sliced carrot, the head, neck, liver, and heart of the hare, and four ounces of bacon cut in small thin slices, and simmer gently for an hour. Strain the gravy and leave it until next day, then carefully remove any fat which may have risen to the top. Drain the hare very carefully from the vinegar and stew it in the gravy until tender. A few minutes before serving add a glass of port wine, then pile up neatly on a very hot dish, garnish round about with a border of some suitable vegetable, or with small forcemeat balls, and send to table at once, accompanied by very hot plates.

#### A DAINY FRENCH RAGOÛT.

Take two fresh oxtails, joint them and divide them into convenient-sized pieces, then put them into boiling water and simmer gently for a quarter of an hour, after which take them up, drain well, and trim neatly. Cover the bottom of a stewpan with any trimmings of meat or poultry there may be at hand, then put in the pieces of oxtail, add a large onion stuck with three or four cloves, a few sticks of celery broken up small, a bunch of mixed herbs, a seasoning of salt, a dozen peppercorns, and two quarts of water or stock. Bring to boiling point, then skim carefully and simmer gently until the meat will part easily from the bone. Carefully lift out the pieces of oxtail and put them on one side, then strain the gravy and return it to the stewpan with sufficient roux to bring it to a smooth creamy consistency. As soon as it boils, add half a pound each of carrots and turnips cut into small neat shapes, six or eight small, roughly chopped boiled onions, a pint of small white haricot beans which have been put in soak the day before and then

boiled until soft, but not broken, and the oxtail. Add a little more seasoning if required and simmer gently for ten minutes. Arrange a firm, neatly shaped border of mashed and seasoned potatoes round the edge of a hot dish; dish up the ragoût in the centre, garnish round about with slices of fresh lemon and sprigs of parsley, and serve the whole as hot as possible.

#### RAGOÛT POWDER.

This is a most convenient item to keep on hand, as it adds a most delicious flavour to a ragoût of any kind, no matter of what the latter is composed. Take one ounce each of grated lemon rind, ground black pepper, and dry mustard, half an ounce each of grated nutmeg and powdered ginger, and a quarter of an ounce each of cayenne, powdered mace, and powdered cloves. Dry these ingredients thoroughly in a gentle heat, then pound them smoothly in a mortar, mix with them two ounces of fine salt, and pass the whole through a fine hair sieve. Put the powder into small perfectly dry bottles, cork tightly, and store in a dry place. A very small quantity of this will be found a great improvement, and it will keep good for almost any length of time.

### HOUSEHOLD HINTS.

**PULLED BREAD.**—This is a very popular form of serving bread, and is often preferred to either toast or biscuits, or even the ordinary dainty dinner rolls. It is especially nice as an accompaniment to soup or to cheese. To prepare it, carefully remove the crust from a newly-baked loaf of white bread while it is still warm and pull the crumb into small, rough pieces, using the fingers of both hands for the purpose. Place the bread, when thus prepared, on a baking sheet, and bake it in a slow oven until lightly browned all over and quite crisp. Cool on a sieve, and use as required.

**THREE USEFUL HINTS.**—To remove stains from a marble mantelpiece or a marble-topped washstand, &c., use equal quantities of soft soap and pearl-ash. Cover the marble with these items, and in a few minutes wash it carefully with warm water and a soft cloth. If necessary, repeat the process.

**TO CLEAN STEEL FENDERS, FIREIRONS, &c.**—Cover the steel with sweet oil, well rubbed in, and in about forty-eight hours use unslaked lime very finely powdered, and rub briskly, first with a soft duster, then with wash-leather, and the rust will quickly disappear.

**TO REMOVE PAINT STAINS FROM GLASS.**—It sometimes happens that when a house is being painted the windows get splashed a little, no matter how careful the painter may be. These very unsightly spots can easily be removed by washing them over with very strong hot soda and water. Use a soft flannel for the purpose, and go over the spots again and again until not a trace of them remains. Grease spots and all finger marks, &c., can be removed very quickly from looking-glasses, tumblers, and other articles of glass in the same simple way.

#### Electricity Again.

A Chicago poultry-keeper has installed the electric light for his hens. As a consequence the number of eggs jumped up from 26 to 83 per diem. And, what is more, some hens laid whilst moulting. Poor hens!



## "VI-DO."

## "CLARENDON" MALT FOOD TONIC.

"VI-DO" is the registered name of Clarendon health food, and consists of an extract of malt and hops after being steamed and dried. It is claimed by the makers, Messrs. White, Tomkins, and Courage, Limited, that no other food approaches "Vi-Do," for the very reason that it is one of the richest concentrated foods, having an analysis of: Albuminoids, 45.9; carbohydrates, 35.4; oil, 1.4; a feeding ratio of 1 to 1.85; and feeding units totalling 153, against 105 for wheat, 103 for oats, and 108 for maize. Containing, as it does, nearly fifty per cent. of flesh-formers (i.e., protein or albuminoids), "Vi-Do" possesses excellent dietetic properties that have the effect of:

1. Stimulating the appetite
2. Increasing the assimilability of other foods.
3. Acting as a tonic in bracing up the system.
4. Protecting animals fed on it from infectious diseases.
5. Assisting fowls over the moult.
6. Ensuring fertile eggs.
7. Keeping the male bird vigorous.
8. Preventing young stock from "looking back."
9. Keeping show birds in condition.
10. Fattening fowls quickly by providing them with the necessary appetite.
11. Improving the flavour of both flesh and egg.
12. Encouraging growth in young stock, a wonderful developer owing to the large percentage of flesh-forming elements.

Not one month of the whole poultry year passes but what the fowls—whether young or adult—will benefit by the use of "Vi-Do" in their soft mash. One cannot wonder at "Vi-Do" stimulating the appetite, for it is so meaty in flavour that it is quite tasty to the human tongue. "Vi-Do" is, in fact, so strengthening that not more than ten per cent. (one-tenth) of it should be added to the other ingredients of the soft mash. Owing to its medicinal properties the free use of "Vi-Do" in the mash will bring wonderful results.

## AN ATTRACTIVE CATALOGUE.

WE have been favoured with a copy of Messrs. Boulton and Paul, Ltd.'s new catalogue, a splendid publication of 136 pages, printed on art paper and profusely illustrated, containing full particulars of specialities for which this old-established firm is so well known. Everything can be supplied in connection with the poultry yard, from a drinking vessel costing a few shillings to a fully equipped plant costing some hundreds. Nothing is too big, nothing is too small, for this firm to undertake.

Several new lines are included in the present catalogue. Special reference may be made to the inclusion of some excellent portable houses, which are being offered at an extremely low figure. The intensive side of the question has been fully catered for, and particulars are given concerning the special ranges of intensive houses.

The catalogue illustrates a very attractive form of portable house. It is substantially built, is mounted on four stout wheels, and is an ideal house for the farmer or the poultry-keeper who is fortunate enough to have plenty of land over which his fowls may roam.

The catalogue will be sent on receipt of a postcard to Boulton and Paul, Ltd., Norwich.

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"CLARENDON" Poultry Meal contains a large proportion of cooked meat, so essential for egg-production and chicken rearing. To this is added dried milk, forming an ideal food for laying hens and growing chicks. "Clarendon" Poultry Meal has a guaranteed analysis of nearly 20 per cent. flesh-formers, so necessary for the albumen in the egg and for forming flesh, fibre and feather in the growing chick. It contains a good proportion of fat for the yolk and mineral matter for the shell also for bone making in the growing chick, besides replenishing the waste constantly taking place in the bird.

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## FOR NETTING USERS.

ALL users of wire netting, for whatever purpose, should send for a copy of the 1915 Duplex Patent Netting Catalogue. The feature of this new issue, which is beautifully produced by the photogravure process, is a series of remarkable photographs. The tests of Duplex and other nettings which these photographs illustrate are convincing proof of the additional strength and rigidity imparted to Duplex by its patent interwoven mesh. Incidentally the photographs also show the striking symmetry of Duplex netting, the regularity of the meshes and the evenness of the wire twists—obviously factors that count in the durability of Duplex and as aids to its resistance to pressure both during erection and afterwards. With all the advantages claimed for Duplex it is the more remarkable to learn from the catalogue that it does not cost any more than the ordinary type of netting; indeed, the catalogue states *less*, if erection cost is considered—as it must be. We are informed that continuous increase marked the sales of Duplex last season, and the manufacturers reasonably claim that the large number of orders already received this season are the best possible evidence that Duplex netting has given last season's buyers every satisfaction. Catalogues may be obtained post free from Hall and Pickles, Port Street, Manchester.

## "Farm Poultry."

This well-known and highly esteemed journal, of which Mr. John H. Robinson is editor, is now being published fortnightly at 39, Sudbury Street, Boston, Mass., U.S.A.

## Death of Mr. James Rankin.

The Father of the American Duck Industry, Mr. James Rankin, of Easton, Mass., passed away on December 13, 1914, at the ripe age of eighty-four years.

## A GOOD PERFORMANCE.

THE pen of White Leghorns belonging to the Worcestershire Poultry Farm, Tardebigge, near Bromsgrove, did extremely well in the Twelve Months' Laying Competition, which has lately concluded at the Harper Adams Agricultural College. Although they obtained tenth position, they averaged nearly 220 eggs per bird. Bad luck was experienced during the early days of the competition. Four of the birds moulted, two never laid an egg for the first two months, and one for three months. Considering the bad start, the birds did remarkably well. Four of the six hens laid over 200 eggs each, all of first grade quality, while the remaining two laid over 86 per cent. of first grade eggs.

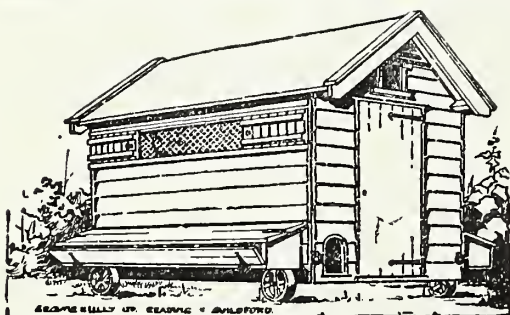
## A CACKLING CHORUS.

(Written for *Farm-Poultry*, 1891.)

If you want some winter eggs, heed our humble rhyme;  
Feed us first, feed us last, feed us all the time.  
Leave us not in squalid pens to a filthy feast;  
Clean the perch and premises, thrice a week at least.  
Should the younger pullets fail, 'tis no fault—but fate;  
If they were not hatched in March they were born too late.

## New-laid Eggs.

A firm of Dublin egg merchants have been heavily fined as a result of a prosecution by the Irish Department of Agriculture for selling eggs as "New-Laid Irish" when they were neither one nor the other. The important point is, the magistrate laid down that a new-laid egg must not be more than nine days old.



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## CO-OPERATIVE MARKETING OF EGGS IN CANADA.

UP to about three years ago the application of co-operative principles to the marketing of eggs in Canada was comparatively unknown. During the past year or so, however, the movement has been largely developed, and "egg circles" are now familiar institutions in many of the provinces, particularly in Ontario, Quebec, and Prince Edward Island.

In Ontario Province there are at present some twenty circles. Nine of the circles are in Ontario county and these exported during the thirteen months, December 1, 1912, to December 31, 1913, eggs to the value of over £7,300. The advantage of co-operation is well shown by the fact that the average price of eggs paid to the circles was  $\frac{3}{4}$ d. per dozen more than that paid to poultry-keepers by the local stores.

In Prince Edward Island co-operative marketing of eggs is the most important form of agricultural co-operation in the Province. The rapidity with which the movement has developed is striking. Although the first egg circle was not formed until March 20, 1913, there were nineteen circles in active operation on March 20, 1914. These circles have a membership of 1,220, and they have so far disposed of over 175,000 dozen eggs. Fifty-two more circles are in process of formation and most of these are only awaiting the necessary outfit to commence work. Many of the circles have been formed in isolated districts, and it has been found desirable to promote a central association to organise the work throughout the Province. This Association is known as the Prince Edward Island Co-operative Egg and Poultry Association, and the Act of incorporation describes as one of its principal objects to engage "in such commercial enterprises as may be deemed advisable to facilitate the more profitable production and disposal of the produce of individual circles." The Association is further to encourage the production and marketing of eggs and poultry as well as the purchasing, breeding and distribution of improved strains of high producing stock.

The Act also provides that the members are to be grouped into separate egg circles, each of which is given a number. The individual members in each circle are also to be designated by a number. The stamp used by the Association is to consist of a double lined circle with the letters "P.E.I." printed at the top and in the centre two numbers, the lower one to be the number of the circle and the upper one that of the individual in the circle. The Association may lend stamps to the members, but the latter must return them if they fail to use them in accordance with the regulations.

The local circles are semi-independent and can amend their own constitution and by-laws, subject to the approval of the central Association. They may be represented at each meeting of the Association by two delegates. The board of directors of the central Association may employ a business manager, who himself must not be a director, and who is to have charge of the collection and sale of the eggs and apportion the returns among the members. Every egg not intended for home use must be delivered to the Association duly stamped.

The superintendence of the work in the different

provinces is undertaken by the Poultry Division of the Live Stock Branch of the Dominion Department of Agriculture, who co-operate with the Provincial Departments in designing the requisite legislative measures and generally do what they can to assist in making the movement a success.

The Division are at present engaged in planning a uniform system of stamping to take the place of the large number of different methods at present in use.

Although the Canadian egg circles have only been recently formed the beneficial effects of co-operation are already well in evidence. The price of eggs has been raised, the general standard of quality has improved, and greater attention is paid to proper breeding and feeding.—"The Agricultural Gazette of Canada," May, 1914.

### Utilitarians in Derbyshire.

A new society has been formed called "The Burton and District Utility Poultry Association," of which the hon. sec. is Mr. John Bull, 284, Belvedere Road, Burton-on-Trent.

### Auction Marts.

Where auction marts have been started for poultry in cheaper districts, these have in most cases rendered great service by affording a regular and certain outlet. The opening of one at Hereford recently evidently made an excellent start, and we wish it all success.

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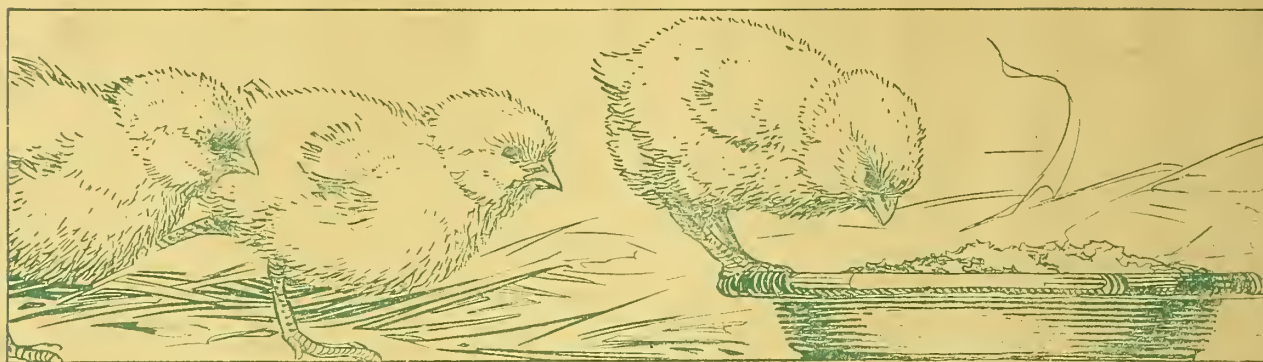
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Total cost, fed on ordinary food, until ready for fattening ... 2s. 4d. per bird.

12 weeks on **Karswood Chick Rearing Meal**, from the start, at 1d. per week, by which time they should be fine, healthy birds—as big in body and much stronger in every way than those at 20 weeks on ordinary food ..... 1s. 0d. per bird.

**Saving by using  
Karswood Chick Rearing Meal..... 1s. 4d.** per bird.

It is precisely the same with egg-production. A pullet fed on the Karswood system will come on to lay weeks before one fed on the ordinary food, and will thus be making profits while the other fowl is "cating its head off." This applies more particularly to the production of eggs in winter, when they fetch the highest price. Such prices mean a veritable gold mine for those fortunate ones who feed on the Karswood system—their early-hatched pullets start laying as a matter of course in the beginning of September, and keep it up through the winter.

The first ten or twelve weeks of a chick's life is of the very greatest importance. And if Karswood Chick Rearing Meal is the principal diet during that time, followed by Karswood Complete Poultry Meal when the bird reaches the adult stage, there will be no complaints regarding egg-production.

Instructions for feeding are included with every bag of Karswood Chick Rearing Meal, obtainable direct or from all good dealers.

Sizes and Prices : 7lb., 1s. 6d. ; 14lb., 2s. 9d. ; 28lb., 5s. 6d. ; 56lb., 10s. 6d. ; 112lb., 20s.

Mills at Heathfield, Sussex. All correspondence to :—

E. GRIFFITH HUGHES (KARSWOOD), Ltd., 816, Deansgate Arcade, Manchester.